

TH  
1  
C254  
v. 3  
no. 8  
c. 1  
ENG5

ORIGIN ST

# The Canadian Builder and Carpenter

PUBLISHED ONCE A MONTH BY THE COMMERCIAL PRESS, LIMITED

Vol. 3

TORONTO, AUGUST, 1913

No. 8

## Medusa Cement Products

**Medusa  
Water-Proofing  
for Cement**



**Medusa  
White Portland  
Cement**

is especially useful in making building blocks, cement plastering, cellar walls, cistern linings—or anywhere else where resistance to water is required.

*Saves Money because it saves Cement—  
we'll prove it to you*

is perfectly white in color, and is guaranteed to be equal to the best gray cement in strength, setting and hardening qualities.

*Especially adapted to ornamentation work,  
interior decorations, etc.*

FREE SAMPLES OF EACH ON REQUEST

### Stinson-Reeb Builders' Supply Co., Limited

10th Floor

Montreal

E. T. Bank Building



# Midland Planing Mill Products

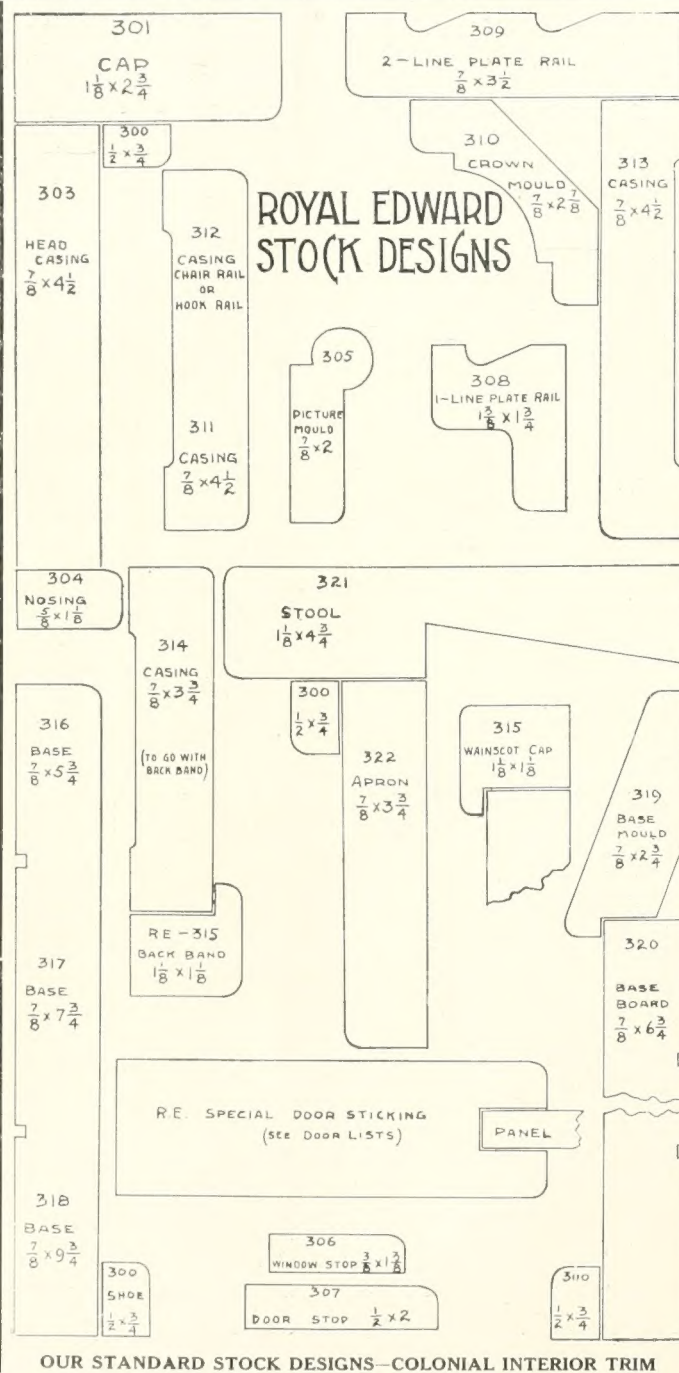
We are the Originators of  
**Harmony**  
in Stock Designs  
for Interior Trim

Give your work the Tone  
of Harmony by having the  
base match the casing, the  
casing match the head  
moulds, and the cap moulds  
the stops, and the stops to  
match the door moulds.

*This cut shows you  
how*

**Modern  
Mission  
and  
Art Craft**

Designs are all illustrated  
in our Stock Designs Cata-  
logue.



UP-TO-DATE LINES  
of  
**Interior Trim**  
and  
**Finish of all Kinds**  
in  
**Pines and Hardwood**  
**White Pine**  
**Black Ash**  
**Chestnut**  
**Oak**  
**Canadian Red Pine**  
**Etc.**

## Doors:

**Pine for Oil**  
**Pine for Paint**  
**Solid Chestnut**  
**Hardwood Veneer**  
**Slab or Panelled**

Finish your houses with  
Midland Doors and Trim

# Georgian Bay Shook Mills, Limited

Midland, Ontario

MANUFACTURERS FROM THE TREE TO THE FINISHED PRODUCT



# Midland Planing Mill Products

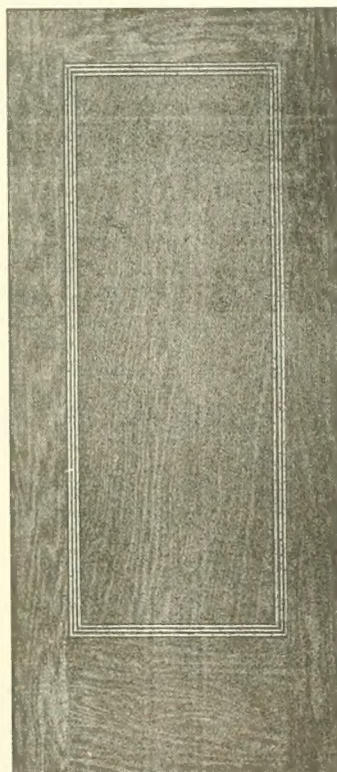
Don't Fuss and Bother to import your Veneered Doors. Cut out the Long Delays and Customs Papers. Buy where the Factory is Handy, if you want to talk to them.  
Keep your money in Canada, where we employ Men, and not Girls, to make doors.

## The MIDLAND SPECIAL

### VENEERED

Canadian  
Made  
Stock  
Veneered  
Doors

Three Designs  
All Sizes  
Birch  
Plain Red Oak



### DOORS

Biggest  
Door  
Success  
of the  
Season

3/4 in. Panel  
Heavy Rails  
Bolection Moulded  
Bench Finished

Our Announcement of the MIDLAND SPECIAL Low-Priced, High-Grade Veneered Doors has met with INSTANTANEOUS SUCCESS, and we have already booked orders for some of the largest Apartment and Hotel jobs, as well as a host of smaller orders.

It's a Good Door, Honestly-built, Made in Canada—and it's a Big Success.

Send for Booklet, *The Midland Special*, with Prices and Discounts.

This is the only Canadian made Veneered Door that competes successfully with American Stock Lines.

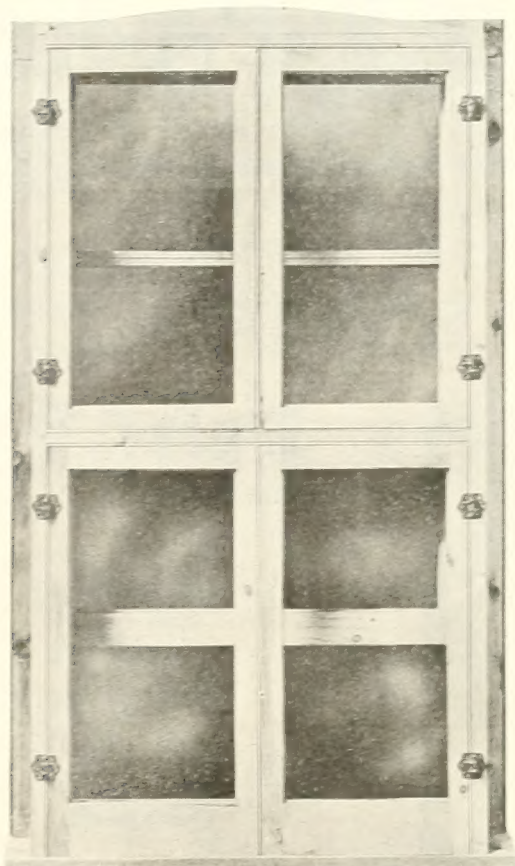
*Get the Best—It's Made in Canada*

## Georgian Bay Shook Mills, Limited

Midland, Ontario

MANUFACTURERS FROM THE TREE TO THE FINISHED PRODUCT





## Many Builders are Saving Money

on their building contracts by getting their supplies direct from us.

And so can you if you will give us the chance to make good our claims.

Our Specialty is the manufacture of

## Window Frames

and the reputation we have earned in this direction is your assurance of perfect satisfaction.

You know that your future contracts depend largely upon the success you are making of your present work. It will pay you therefore to use every care in the selection of your building requirements.

If there is one line in which we can give you better all-round satisfaction than another it is in the matter of  
WINDOW FRAMES

Furnished complete with inside or outside blinds and all necessary hardware.

We also manufacture a complete line of

## Window Sashes Blinds Storm Windows

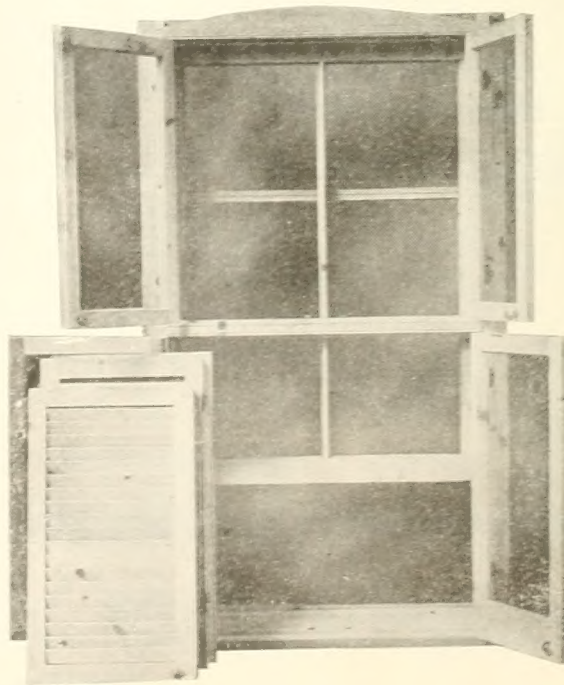
The workmanship and materials embodied in our goods are positively the best obtainable.

If you want to save money on any or all of these lines you should consult us

*Drop us a letter or card to-day and we'll send you complete information by return mail*

# PEMBROKE LUMBER CO.

PEMBROKE :: ONTARIO



# To Contractors and Builders

Now is the season for placing your orders  
for

**Rough Lumber—Hardwood  
and Pine Flooring Trim, and  
Doors—Ready Roofing  
and Wallboard**

Send in your bills and let us quote on  
your requirements, or call at any of our  
offices.

## **Canada Lumber Company** LIMITED

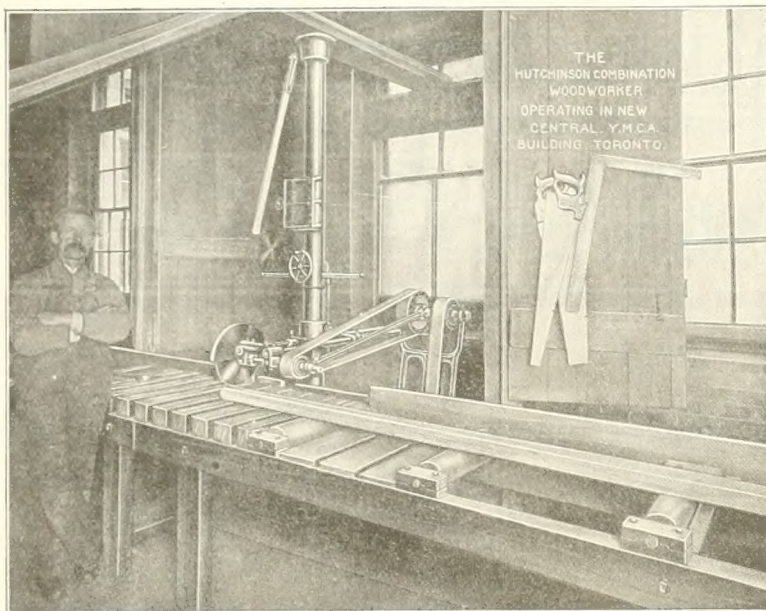
106 McKinnon Building, TORONTO

*Mill and Yard:*  
Cor. Church St. & C.P. Ry.  
WESTON, ONT.

*Distributing Yard:*  
1090-1104 King Street West  
TORONTO



# We Want YOU to See This Machine in Operation



For Cutting Studs, Rafter Braces, Boring for Dowelling, Tenoning, Dadoing, Pulley Stiles, Window Sills and Door Jambs, Routing Stair-Stringers, Mitreing of any kind, Tool Grinding, Etc.

And to get a first hand knowledge of its great time and money saving features.

We invite you to call and see us

## At the Toronto Exhibition

(August 23 - September 8)

where we will be exhibiting this wonderful little machine (in the Machinery Hall).

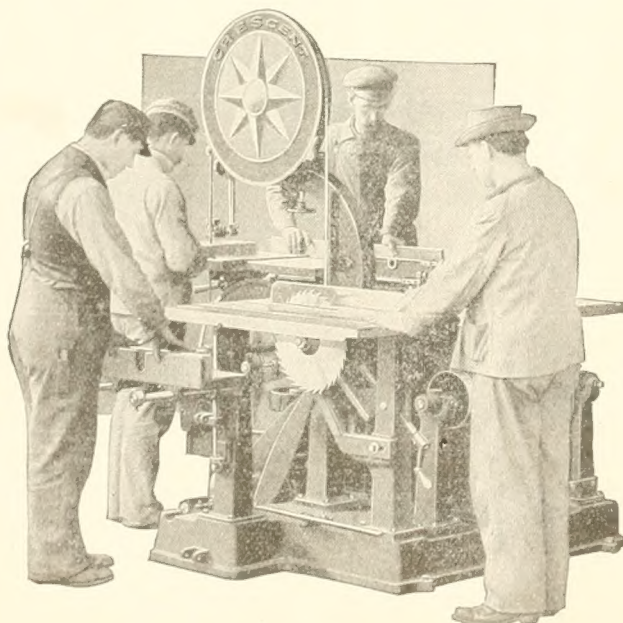
Of course you'll be at the Exhibition enjoying all the little incidental festivities, but by setting apart a little of your time to spend with us, you can make your visit a highly profitable and instructive one as well.

*So don't fail to see our exhibit—  
it's to your advantage*

## M. Hutchinson

5 Duke Street, TORONTO

# "Crescent" Universal Wood-Worker



In designing the "Crescent" no pains have been spared to make it a machine that will fill every requirement of the average woodworking shop. It is heavily built of the best material and is thoroughly practical and efficient for every use for which it is recommended. It is not as low in cost as some other makes, but to the user who looks to "value" rather than to low first cost we have a machine he can not afford to pass by in favor of any other. It weighs 3200 lbs., and is recommended, when fully equipped, for ripping, cross-cutting, band sawing, jointing, rabbeting, mortising, tenoning, dadoing, etc., etc.

Send for Catalogue  
and Prices

*We make a Specialty of outfitting Wood-Working  
Mills with complete equipment of Machinery.*

## J. L. Neilson & Co., 602 Main St., Winnipeg, Man.



# Come and See the Elliot Woodworker Demonstrated

**Q** We have been telling you in *The Canadian Builder and Carpenter* of the savings you can effect with the Elliot Combination Woodworker, the Elliot Scroll Saw and the Elliot Sander ; and of the convenience they are.

We have just completed a new Bench Jointer, 6-inch, with head all complete, can be put on a carpenter's bench and run with small motor, or from our Elliot Woodworker. Be sure and see it.

**Q** If you will look up our exhibit at the Toronto National Exhibition, we can **show you** what we have been **telling you about**.

**Q** Every carpenter and builder will be interested in this exhibit, because we can actually demonstrate to you **ways of getting out your work cheaper and better**.

*You will find our Exhibit in Machinery Hall any day from August 23 to September 8 at the National Exhibition at Toronto*

**W. A. ELLIOT**

Bathurst and College Streets  
TORONTO



"Has fully met every claim made for it—

"CAN'T understand how any contractor or builder could do without a saw rig of this kind." These are some of the nice things Shipp & Osborne, Newburgh, N.Y., have just said about the "Eveready." The



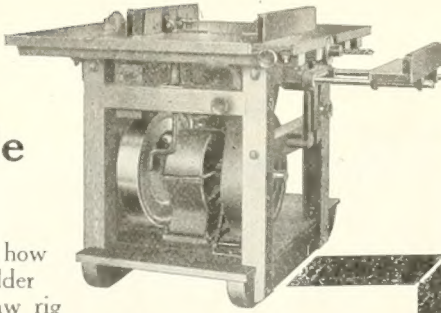
**Eveready SAW RIG**  
Supplies a Long-Felt Want

That's what brings glowing letters from users all over the States and in the Dominion. It is a condensed planing mill, carries its own gasoline engine and can be moved anywhere. Saves six to ten men's wages on cross-cutting and rip-sawing, and, with its set of **Free Attachments** practically liberates you from exorbitant planing mill charges. Write for **Free Trial Offer** at once. Also details of Oshkosh Trench Pumps.

Live Agents Wanted in Open Territory

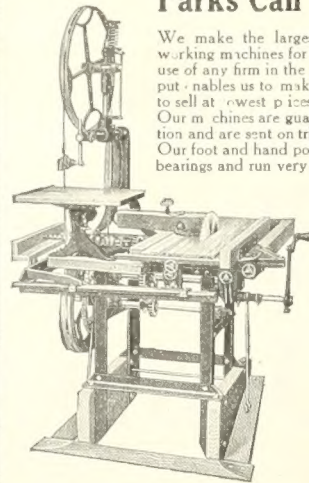
**OSHKOSH MFG. COMPANY**

520 S. Main St., Oshkosh, Wis., U.S.A.



## Parks Can Supply You

We make the largest assortment of wood-working machines for small shop and portable use of any firm in the world. Our large output enables us to make prompt shipment and to sell at lowest prices. **Why pay more?** Our machines are guaranteed to give satisfaction and are sent on trial anywhere in Canada. Our foot and hand power machines have ball bearings and run very easily.



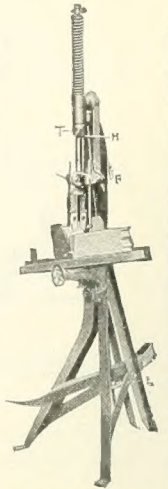
No. 13 is a combination of three useful machines—circular saw, band saw and borer. Operated by hand or foot power or both.

### Our Motto:

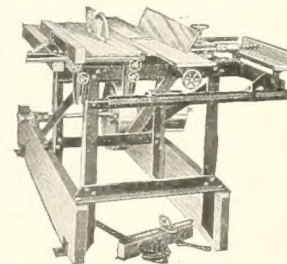
Convenience in operation

Reasonable in price

Satisfaction guaranteed



No. 150 is a powerful foot power mortising and tenoning machine and is indispensable in the small shop.



No. 240-L is a power combination consisting of circular saw, 6-inch jointer, tilting guide and borer.

We are represented in all of the provinces and can arrange to put in any machine you select on trial. The prices of our machines are lower than you think and you cannot afford to be without labor saving machines these days.

Catalog No. 7 sent upon request

**Parks Ball Bearing Machinery Co.**

1501 Knowlton St., Cincinnati, Ohio

Pacific Machinery & Supply Co.,

Vancouver, B.C.

Canadian Equipment & Supply Co.,

Calgary, Alta., Regina, Sask.

Stuart Machinery Co., Winnipeg, Man.

Bourival & Co'y, Montreal, Que.

# Before You Buy Your Floor Scraper



Sold in Canada by  
**NEW GLASGOW & NORTH SYDNEY, N.S.**  
Thompson & Sutherland, Limited

**WINNIPEG, MAN.**  
The Canadian British Engineering Co., Limited

**WINNIPEG, MAN.**  
Aikenhead-Clark Hardware Co.

**MONTREAL**  
E. Cavanagh Co., Limited

**CALGARY**  
Canadian Equipment & Supply Co., Limited

**SARNIA, ONTARIO**  
Mackenzie-Milne & Co., Limited

**MONTREAL**  
James Walker Hardware Co., Limited

**MONTREAL**  
Durand Hardware Co.

**MONTREAL**  
Frothingham & Workman, Limited

**EDMONTON**  
Sommerville Hardware Co., Limited

**SASKATOON, Sask.**  
Canadian Fairbanks Co., Limited

**SHERBROOKE, P.Q., CANADA**  
J. S. Mitchell & Co.

You owe it to yourself to investigate the Fox. Then you'll see just why it is being so rapidly adopted by the leading Carpenters and Builders everywhere. Your hardware dealer probably handles the Fox. If he doesn't he can very easily get one from our Canadian distributors.

**Fox Supply Company**

Manufacturers

**BROOKLIN,**

**Wisconsin**



## You Can Try **The WEBER DOUBLE ACTING Floor Scraper** Five Days Free

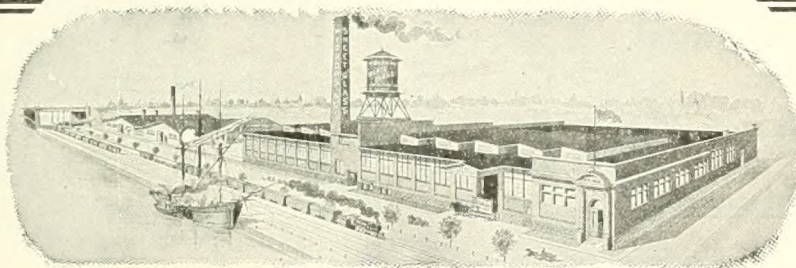
Give the Weber a thorough try-out right out on the job. Then if you don't want it, return it. Send for full details, also catalog showing the

Weber Automatic Sharpening Device, Folding Scaffold Bracket, Folding Saw Clamp, and Handy Cabinet Scraper.

**THE WEBER MFG. CO., 676 71st Ave., West Allis, Wis.**

BRAID & McCURDY, 204 Farmer Bldg., Winnipeg, Canada; A. D. MASSON, 30 St. Nicholas St., Quebec, Canada;  
D. MASSON & CO., 67 Bleury St., Montreal Canada

**RED  
S  
BRAND  
WINDOW  
GLASS**



**GLASS  
BENDERS  
TO  
THE  
TRADE**

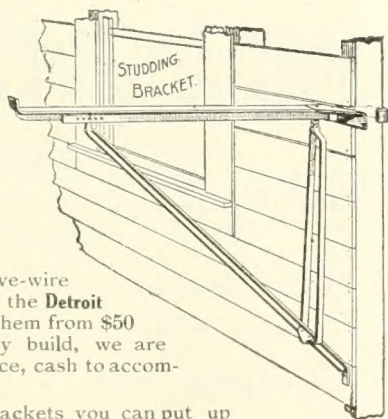
## THE TORONTO PLATE GLASS IMPORTING COMPANY, LIMITED

DON ROADWAY

Plate, Window, Figured, Stained, Wired, Bent, Mirror  
and Ornamental Glass

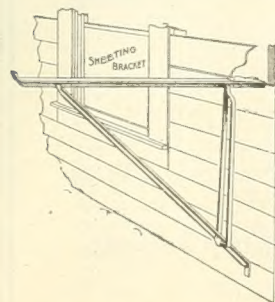
TORONTO

**Special  
Trial Price  
\$17.00  
Per Dozen**



In order to show the live-wire Contractors of Canada that the **Detroit Scaffold Brackets** will save them from \$50 to \$100 on every house they build, we are making them this special price, cash to accompany order.

With the **Detroit Scaffold Brackets** you can put up your scaffolding in one-tenth the time and at one-third the cost, so you will see they are time, labor and money savers. You are also assured of absolutely safe scaffolding as the **Detroit Scaffold Brackets** are the strongest and safest made. Thousands of satisfied users.



### Special Trial Prices as follows:

No. 1—3 ft. Sheeting Bracket	\$17 per doz.
No. 2—4 ft. Sheeting Bracket	\$19 per doz.
No. 3—4 ft. Studding Bracket	\$21 per doz.

**The Folding Scaffold  
Bracket Co.**

57 Fort St. West, Detroit, Mich.

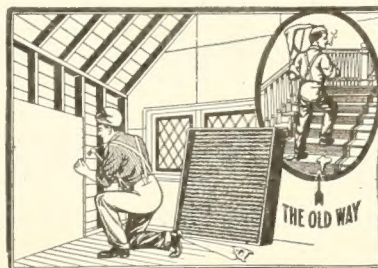
**BUILD  
Quicker, Cheaper, Better  
WITH**

## **BISHOPRIC WALL BOARD AND SHEATHING**

Bishopric Wall Board is made by imbedding dressed, Kiln-dried lath, under 500 lbs. pressure, in sheets of hot Asphalt-Mastic, and surfacing the other side with sized fibre board. The lath gives it stiffness, preventing warping, the fibre board gives a surface that is easily decorated and the patented Asphalt-Mastic makes it moisture proof, rat and vermin proof, fire resisting and practically everlasting.

Bishopric Wall Board comes in sheets 4 ft. square, ready to apply. Prices, \$2.50 per 100 sq. ft., \$6.40 per crate of 16 sheets, (256 sq. ft.) f.o.b. Factory, Ottawa, Ontario.

Write for catalogue and sample to  
Dept. "O. 3."

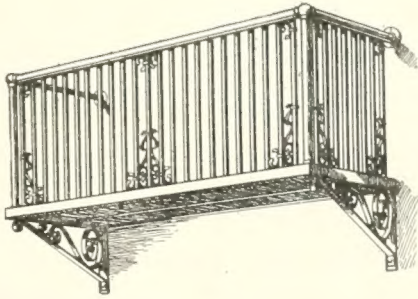


*We want exclusive  
agents. Are you  
interested?*

**Bishopric  
Wall Board  
Co., Limited**

Dept. "O. 3"  
Canada Life Bldg.  
Ottawa, Ont.





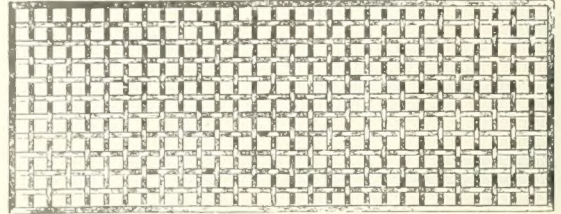
Wrought Iron Balconies  
Porch Railings      Stair Railings  
Fire Escapes

Builders' Iron and Wire Work

Send for Catalogues

**Dennis Wire & Iron Works Co.**  
London, Ont.      Limited  
Toronto Branch      -      36 LOMBARD STREET

## Ornamental and Architectural Wire & Iron Work



Flat Wire Grill

Balconies	Cashier Cages
Steel Stairs	Wire Proof Signs
Fire Escapes	Collapsible Gates
Window Guards	Fire-Proof Windows
Stair Railings	Iron Fencing and Gates

*Let us estimate on your requirements*

**Winnipeg Wire & Iron Works**  
Winnipeg :: Manitoba

# ONTARIO LIME COMPANY LIMITED

## BUILDERS' SUPPLIES

Lime  
Portland Cement  
White Cement  
Keenes Cement  
Plaster Paris  
Hard Wall Plaster  
Mortar Colors

Fire Brick  
Sewer Pipe  
Weeping Tile  
Sacketts Plaster Boards  
Parkers Corner Bead  
Rubble Stone  
Crushed Stone, Etc.

*With our 9 Branch yards situated as they are we are prepared to guarantee a prompt delivery service of any orders you may favor us with and would ask you to give us a trial in order that we might prove same to you and also prove the excellence of our material.*

**Head Office: CROWN OFFICE BLDG.**

Phones: Main 5472-5473.

Queen and Victoria Sts., Toronto.



## Another Example of our IRON STAIR CONSTRUCTION

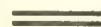


Main Stair, Provincial University Museum, Toronto

This Illustration demonstrates that we are organized to successfully execute contracts in

### IRON STAIRS and other ARCHITECTURAL IRON WORK

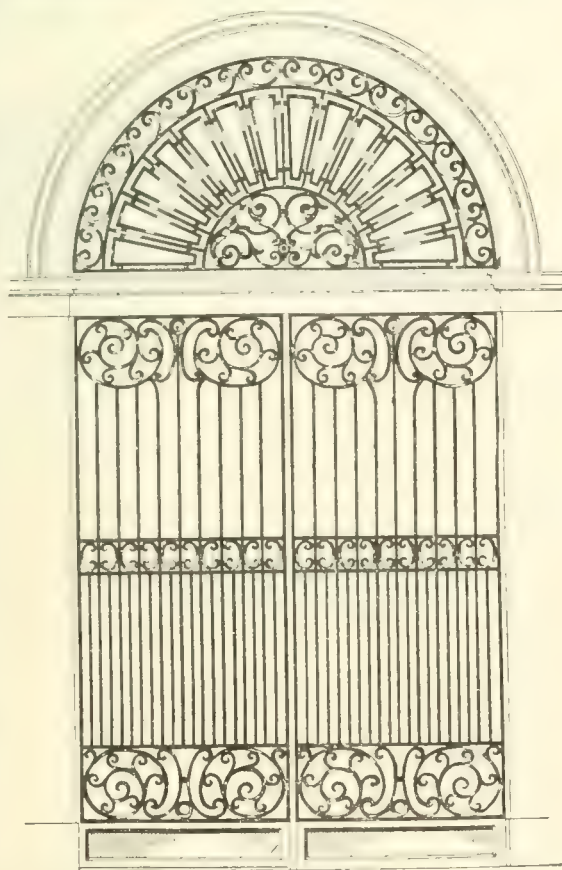
of any magnitude.



If you want high-class work at reasonable prices—

*Come to us.*

The GEO. B. MEADOWS Toronto Wire, Iron and Brass Works Co., Limited  
West Wellington Street :: Toronto, Ontario



## Ornamental Iron Work

*We are specialists, and can give you high-class work at reasonable prices. Let us quote on your requirements*

Stairways—in Wrought and Cast Iron  
Fire Escapes  
Elevator Enclosures  
Marquees and Canopies  
Bank Counter Screens  
Fences and Gates  
Balconies, Window Grills, Lamps, and Brackets  
Light Structural Iron Work

**Dominion Ornamental Iron Co.**

LIMITED

1195 Queen St. E., Toronto



## LINABESTOS Building Board

is the only **absolutely fireproof** moderate priced building board which can be used as a finished surface with battens for paneled effect, or covered with a thin skim coat of plaster for a perfectly smooth wall or ceiling for papering or tinting.

Linabestos is a combination of Asbestos Fibre and Portland Cement, pinkish-grey in color, made in sheets 3-16ths of an inch thick, 42 inches wide and either 48 or 96 inches long. It can be worked with ordinary carpenters' tools, and nailed direct to the studding.

Linabestos saves much time in building, and makes walls and ceilings that are absolutely fireproof, warm in winter, cool in summer, easily decorated, and that will never crack or fall.

*Write for Leaflet No. 5 giving full particulars about this new and better building board*

### Asbestos Manufacturing Co., Limited

Address: E. T. Bank Bldg., 263 St. James St., Montreal

Factory at Lachine, P.Q. (near Montreal)



## Real Economy in Roofing

That's what  
**Maltby's Whale-Hide Roofing**  
Spells



**Whale-Hide Roofing** has positively no **superiors**. It is much cheaper than its **equals**; but does cost a little more than its **inferiors**

**Mr. Builder:** Do not commit the protection of your property to the uncertainty of a cheap roofing, which has nothing to recommend it but its low price.

If you believe in the common sense idea that what a man gets is as important as what he pays, we ask you to send for sample of **Whale-Hide** and investigate its quality.

### Dominion Roofing Manufacturing Co., Limited

Factory:  
New Toronto

Head Office:  
TORONTO

Branch Warehouses:  
Montreal and Winnipeg



# "PUDLO"

PATENTED AND REGISTERED.

Makes Cement For Water-proof  
Damp Walls,  
Leaking Cisterns,  
Flooded Basements.

The result of many years research by an eminent British chemist. The **cheapest** and **only safe** method of water-proofing cement and concrete work. Used by British Government, Foreign Governments, Architects, Engineers, Contractors, Etc., Etc., as a preventative against Damp Walls, Flooded Basements, Reservoirs, Roofs, Etc.

"We used 'PUDLO' in a stokehole near and below head of canal. Result is, **A Good Job.**"—Ref. 63.

Pudlo increases the strength of Portland Cement.

Write for Booklet of full particulars free on request.

Agents Wanted

**The W. H. THORNHILL COMPANY, 160 Princess St., Winnipeg, Man.**  
*Sole Distributors for Canada*

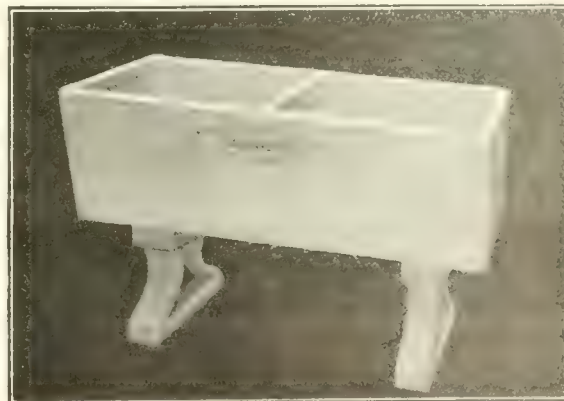
## Builders' Supplies

Water Washed Sand  
Pit Sand  
Screened Gravel  
Pit Run  
Crushed Limestone  
Crushed Granite

Call Adelaide 1947  
For Information Regarding  
Prices and Deliveries

Prompt Attention Given  
All Orders

**Sand & Supplies Ltd.**  
Toronto      Ayr, C.P.R.



## The Monarch Laundry Tub

Made in two styles—Enamelled Cement and Cement. Reinforced with iron and positively guaranteed impervious to hot water.

We solicit your business thoroughly convinced we can give you complete satisfaction in Quality, Price and Service.

Write for interesting literature giving full description, prices, etc.

## Toronto Cast Stone Works

1379 YONGE  
TORONTO



Phone  
NORTH 1587

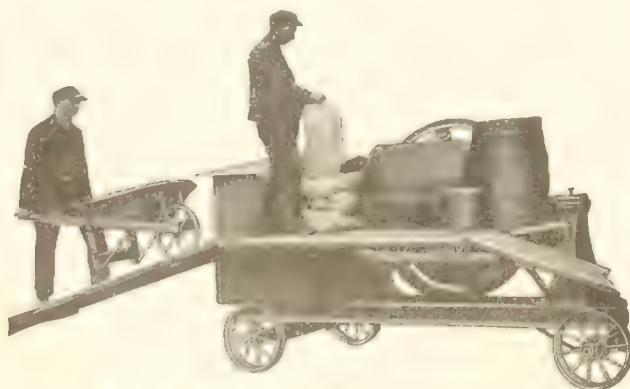




*Rotary Gravel Screen for Hand or Power.*



*Ideal Block Machine equipped with Automatic Tamper.*



*Batch Mixer showing Folding Loading Platform.*

## The "Ideal" Line

Block Machines, Brick Machines  
Automatic Tampers  
Power Drain Tile Machines  
Dimension Stone, Curb Stone, and  
Roofing Tile Machines  
Ornamental Molds, Sewer Pipe  
Fence Post, Sill and Cap, and Burial  
Vault Molds  
Batch, and Continuous Mixers  
Rotary Gravel Screens  
Hoisting Machines  
Gasoline Engines, Derricks  
Tycrete Waterproofing and Colors  
Mortar Gauges, Wall Plugs, etc.

Our latest Catalogue No. 25 contains 160 pages; is the most complete and up-to-date work ever issued on Concrete Machinery and Products. If interested in equipping your plant with Machinery which is guaranteed to give satisfaction, write us.

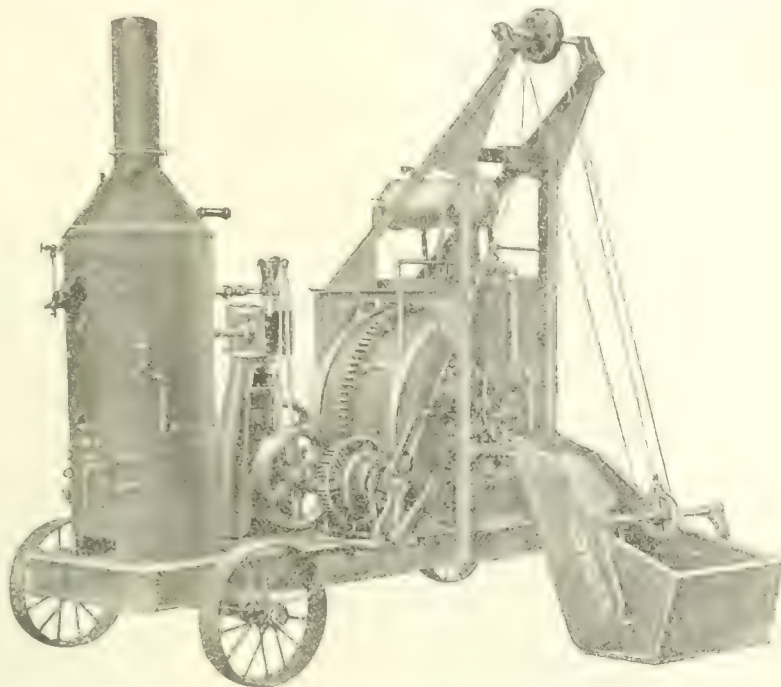
## Ideal Concrete Machinery Company, Limited

211 King Street - London, Ont.

Phone 1256

Dept. C.B.





## LONDON STANDARD DRUM BATCH MIXERS

**will save you  
money on Initial  
and Maintenance  
Costs**

Power loader discharges perfectly clean and will not spill any of the contents

This machine is built entirely of steel; the design is of the most approved pattern

Built in six sizes and with any equipment

## London Automatic Batch Concrete Mixers

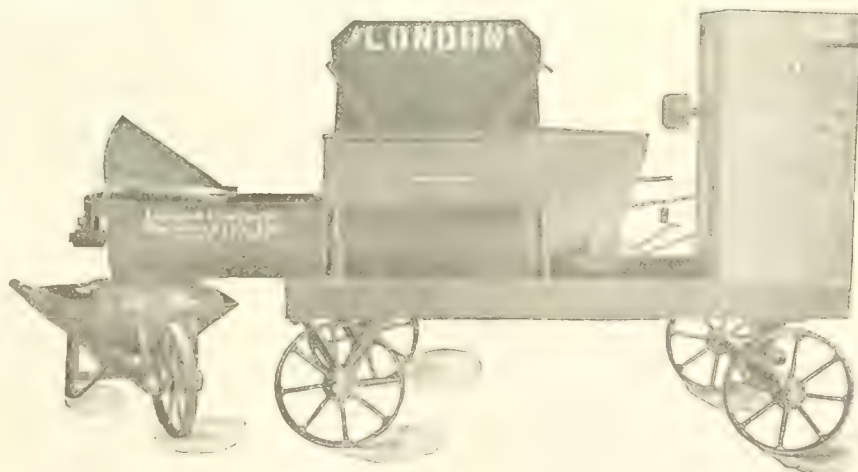
In great demand for all  
classes of work

Very light — easily trans-  
ported — strongly durable

**Prices Moderate**

You simply keep hoppers  
filled — machine does the  
rest.

*Full particulars upon request*



## London Concrete Machinery Co., Limited

Cabell St. and Kitchener Ave., LONDON, Ontario

### BRANCHES:

WINNIPEG, (445 Main St.) W. H. Rosevear, Mgr.

CALGARY, (622 9th Ave. W.) P. D. McLaren, Mgr.

TORONTO, (60 Richmond St. W.) F. D. Emsley, Mgr.

### AGENCIES:

VANCOUVER, B. C. Equipment Co.

MOOSE JAW, Sask. Bridge and Iron Co., Ltd.

REGINA, H. A. Knight

FORT WILLIAM, Northern Eng. and Supply Co.

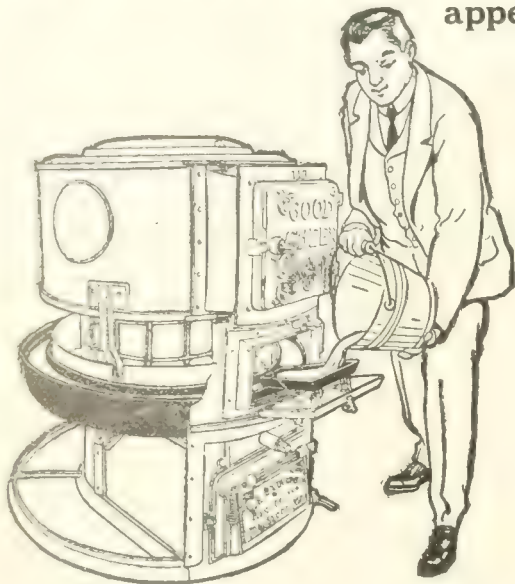
MONTREAL, Foss & Hill Mach. Co.

QUEBEC, A. D. Masson



# A Comfortably Heated House

appeals to everyone



In our climate, househeating is not a luxury, but a necessity, and so long as you let your heating contracts to the lowest bidder, and without due consideration of the importance of adequate heating provision, so long do you leave your reputation as a house-builder open to criticism. The slight difference in cost of

## A "GOOD CHEER" CIRCLE WATER PAN WARM AIR FURNACE

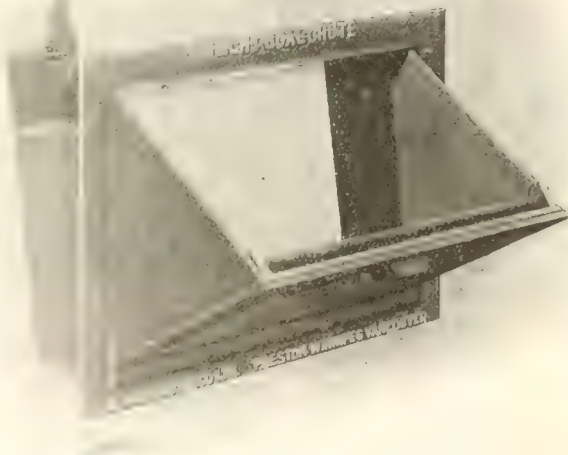
over that of the average heater is a mere bagatelle compared to the enhanced value it gives to the house.

*Let us send you our attractive Catalogue, which gives interesting information about the "Good Cheer" system of Heating. Free to Readers of this Paper.*

**THE JAMES STEWART MFG. CO., LIMITED**

Woodstock, Ont. :: Winnipeg, Man.

## The Window Chute



is no longer a luxury but a recognized necessity in every up-to-date building.

**Open**—It's a chute through which fuel can be put into the basement with ease and convenience.

**Closed**—It's a window that locks automatically and can be opened only from the inside.

**A Basement Window** used for taking in fuel must be continually repainted, repaired and reglazed.

**A Window Chute** needs no repairs and is always neat and clean.

*Prices sent on request*

**Clare Bros. & Co., Limited :: PRESTON ONTARIO**

Manufacturers of HECLA FURNACES, PENINSULAR RANGES

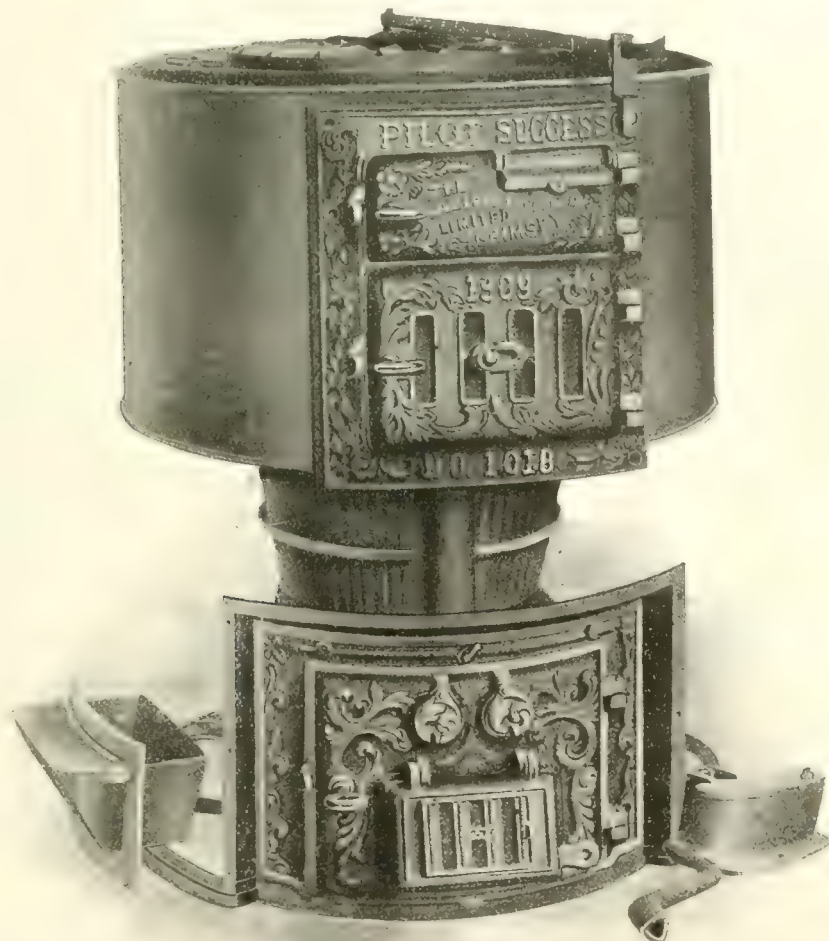
CLARE & BROCKEST, Limited, Winnipeg  
REYNOLDS & JACKSON, Calgary

RACE, HUNT & GIDDY, Edmonton  
J. M. KAINS & CO., Vancouver



# The Pilot Success Furnace

Cut ( Showing Special "Radiator Construction



A  
Thoroughly  
Efficient  
Furnace

At a  
Reasonably  
Moderate  
Price

## IMPORTANT TO THE BUILDER

It will pay you to investigate reasons for the Efficiency and Economy of the Pilot Success Furnaces. Consider the following features:—

**Special Radiator Construction**—gives twice the fire travel of any other furnace.

**Large Air Space**—Allows a quick, free and even air circulation, which prevents waste of fuel.

**EXTRA LARGE FEED DOOR** — Allows passage of irregular chunks of wood.

**COMBUSTION CHAMBER**—Large and roomy. Gives proper combustion of gases. Extra strong and durable.

**DIRECT DRAFT DAMPER**—Higher feed door. Effectually overcomes smoke and gas nuisance when firing.

**EASILY REGULATED and CONTROLLED**—without going downstairs.

*Pilot Success Furnace has many other features which make it a good furnace for you to install in the houses you are building. Send for free booklet and prices.*

## THE HALL, ZRYD FOUNDRY CO., LIMITED

WINNIPEG BRANCH  
288 Princess St., Winnipeg, Man.

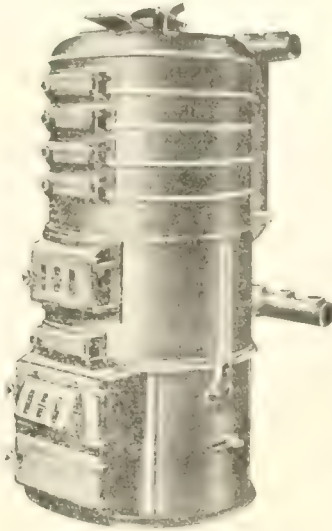
Hespeler, Ontario

TORONTO REPRESENTATIVE: H. H. Jonston, 415 Manning Chambers, Phone M. 5490

WESTERN AGENCIES  
Reynolds & Jackson, Calgary, Alta.  
W. E. Sault, Edmonton, Alta.



## The man who buys your house will want a "SOVEREIGN" BOILER



The house for sale in which a "Sovereign" Hot Water Boiler is installed, will sell more readily than a house in which the heating apparatus is some other make of boiler.

When all hot water boilers cost just about the same, why not make it a point to select the boiler that will certainly invite a prospective customer?

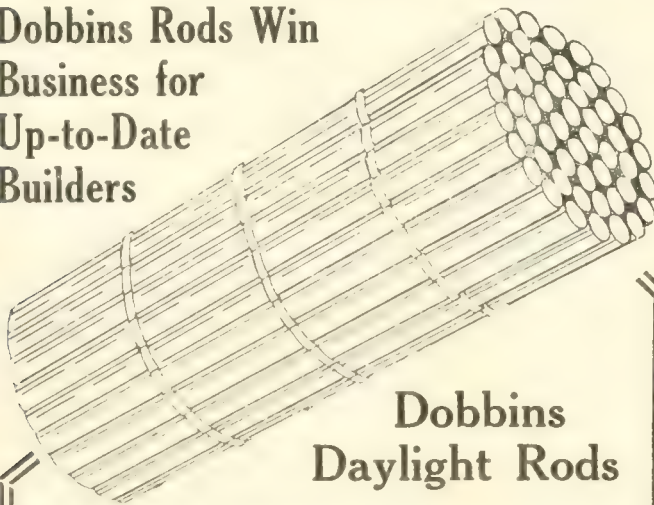
All purchasers of new houses have their minds very thoroughly made up as to which is the best heating apparatus, and you will certainly find that their preference is for the "Sovereign."

The 1913-14 design is made to burn hard coal, soft coal, wood, or any kind of fuel.

### TAYLOR-FORBES COMPANY LIMITED

TORONTO—1088 King St. West      MONTREAL—246 Craig St. West      VANCOUVER—1070 Homer St.  
WINNIPEG—Vulcan Iron Works      ST. JOHN, N.B.—16 Water St.  
QUEBEC—Mechanics' Supply Co.      CALGARY—P. D. McLaren, Limited

**Dobbins Rods Win  
Business for  
Up-to-Date  
Builders**



**Dobbins  
Daylight Rods**

These rods operate upon the old style Venetian Blind principle. They attract light to areas and dark places where light is needed, but can be regulated to soften glare and cause an even diffusion of light where it is too strong.

Dobbins Daylight Rods are sold upon the easiest of demonstrations.

Write to us for Booklet Telling all about them, and a sample Rod

You will find these rods a business winning feature for you. Remember "Consolidated" stands for everything that is good in the sheet, decorated and plate glass industry. Telephone your orders. We always deliver promptly from stock.

**CONSOLIDATED PLATE GLASS CO.**  
of Canada, Limited

Phone College 8000      241 Spadina Ave., Toronto

*Products, Branches, and Agencies in all Departments*

## May Save the Cost of an Extra Furnace

The Kelsey Positive Cap Attachment is a new feature in warm air heating. It directs warm air in independent currents to wherever it is wanted.

Each room in the building gets a sufficient supply of **Pure Warm Air**.

If only a part of the building is to be heated that part gets all the heat. The fuel consumption is regulated to the volume of heat required.

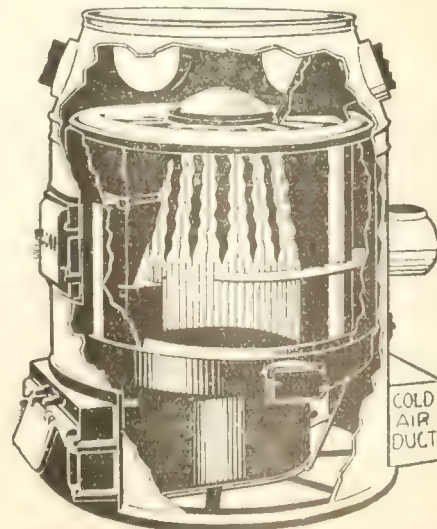
One Kelsey Warm Air Generator equipped with this attachment has given satisfaction where two or more hot air furnaces had been

thought absolutely necessary, or where steam or hot water heating had been thought indispensable.

*Send for descriptive literature*

**The Jas. Smart  
Mfg. Co., Limited**

**BROCKVILLE  
Ont.  
WINNIPEG  
Man.**





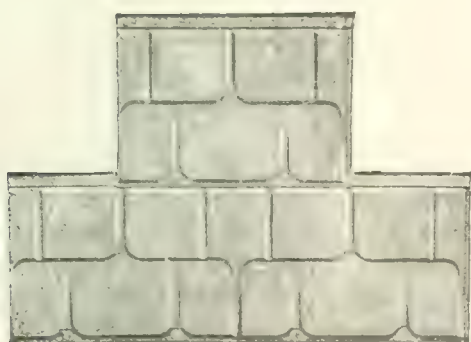


*Building covered with Acorn Steel Siding and roofed with Safe Lock Shingles*

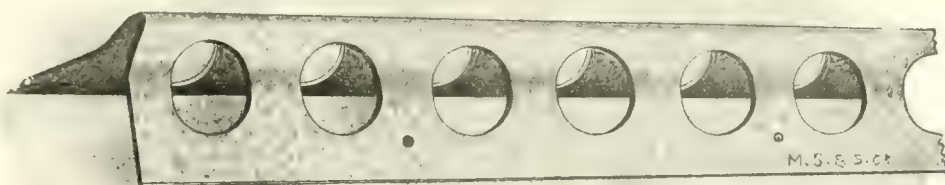
## Carpenters and Builders, Attention!

**W**E now carry a full line of Metal Roofings, Sidings, Ceilings, Plasterers' Corner Bead, Wall Ties, Wall Plugs and all Sheet Metal Goods in stock for immediate delivery to any point.

*Get in touch with us at once and ask to see a sample of our new "Ideal Acorn Ornamental Ridge"*



*Safe Lock Shingles*



*Plasterers' Corner Bead*

## The A. B. Ormsby Co., Limited

Head Office: Toronto, Ontario

Associated with THE METAL SHINGLE & SIDING CO., Limited

*Address nearest branch*

MONTREAL  
Quebec

TORONTO  
Ontario

PRESTON  
Ontario

WINNIPEG  
Manitoba

SASKATOON  
Saskatchewan

CALGARY  
Alberta

EDMONTON  
Alberta



# Staved Columns, Veneered and Balusters, Sash, Floor

## Batts' Staved Columns

Our Columns have a Special *Lock Joint*, which prevents Staves opening, and also increases the Glueing Surface. We use only the best grade of Waterproof Glue.



Design B.L. No. 1

Lth. Dia.	4'	6'	8'	10'	12'
4 ft.	\$1.00	1.50	2.00	2.50	3.00
5 ft.	1.50	2.00	2.50	3.00	3.50
6 ft.	2.10	2.50	3.00	3.50	4.00
8 ft.	3.10	4.00	4.50	5.00	5.50
10 ft.	4.10	5.00	5.50	6.00	6.50

Design B.L. No. 2

Lth. Dia.	4'	6'	8'	10'	12'
4 ft.	\$1.00	1.50	2.00	2.50	3.00
5 ft.	1.50	2.00	2.50	3.00	3.50
6 ft.	2.10	2.50	3.00	3.50	4.00
8 ft.	3.10	4.00	4.50	5.00	5.50
10 ft.	4.10	5.00	5.50	6.00	6.50

Design B.L. No. 3

Lth. Dia.	4'	6'	8'	10'	12'
4 ft.	\$2.10	2.20	3.00	4.00	5.00
5 ft.	2.10	2.20	3.20	4.20	5.20
6 ft.	2.70	2.80	3.50	4.50	5.50
8 ft.	3.70	4.00	4.50	5.50	6.50
10 ft.	4.70	5.00	5.50	6.50	7.50

Design B.L. No. 4

Lth. Dia.	4'	6'	8'	10'	12'
4 ft.	\$2.60	2.80	3.70	4.70	5.70
5 ft.	2.80	3.10	3.85	4.85	5.85
6 ft.	3.10	3.30	3.95	5.15	6.15
8 ft.	4.10	4.50	5.05	6.05	7.05
10 ft.	5.10	5.50	6.05	7.05	8.05

Design B.L. No. 6

Lth. Dia.	10'	12'	14'
6 ft.	\$6.80	8.85	10.60
8 ft.	8.70	9.95	11.90
9 ft.	9.25	10.75	12.90
10 ft.	9.60	11.30	13.50

Builders allowed 10 per cent. discount on above, 8, 10 and 12 in. columns in designs Nos. 1, 2 and 3

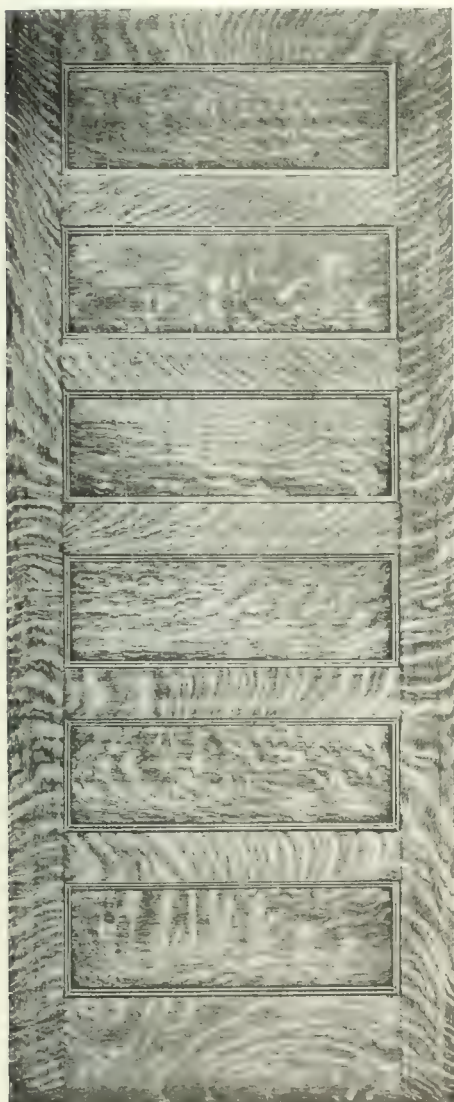
# BATTS LIMITED



# Pine Doors, Newel Posts, Frames,

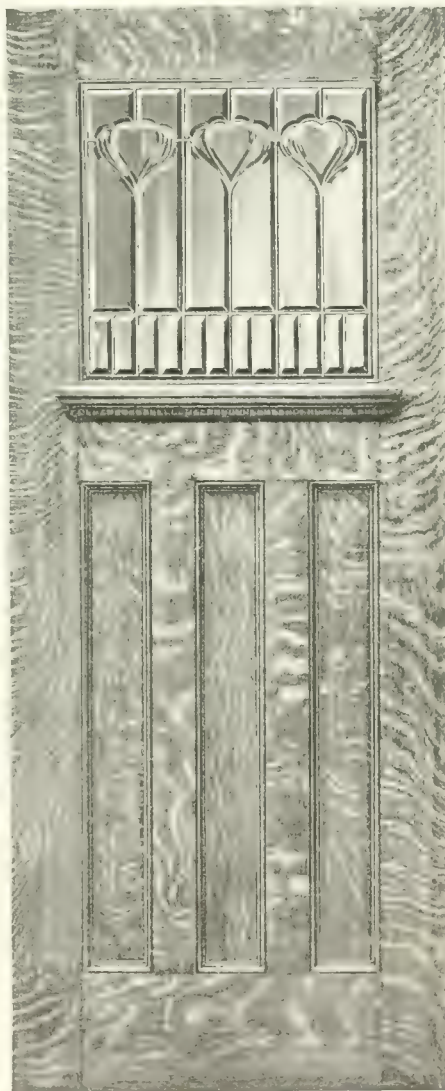
and in fact everything required to complete  
ng complete woodwork for your building

## Batts' Doors are Reliable Doors at Reasonable Prices



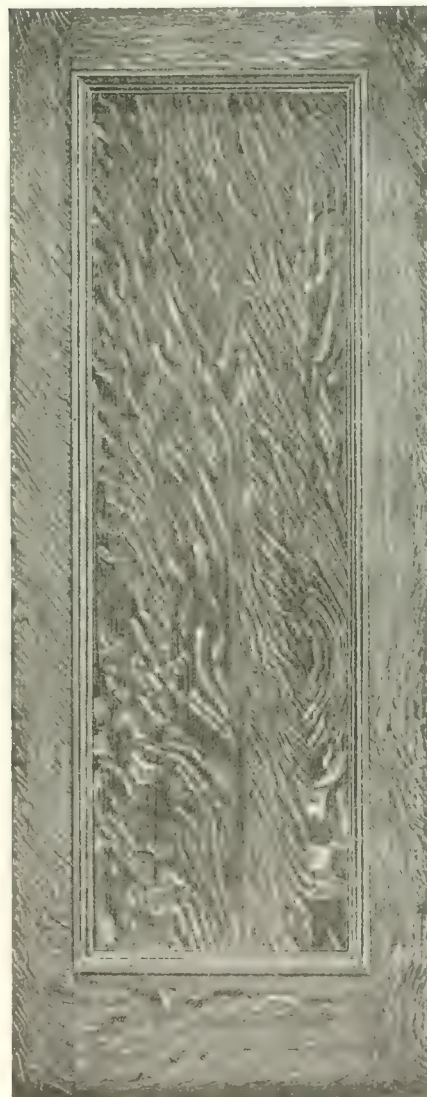
B.L. No. 301, 1-Cut Oak

Sizes in Stock		
2 ft. 8 in. x 6 ft. 8 in.	1 1/2 in.	Price \$7.40
2 ft. 10 in. x 6 ft. 10 in.	1 1/2 in.	Price 7.40
3 ft. 0 in. x 7 ft. 0 in.	1 1/2 in.	Price 7.65



B.L. No. 314, 1-Cut Oak

Sizes in Stock		1-Cut Oak	Pine
2 ft. 8 in. x 6 ft. 8 in.	1 1/2 in.	Price \$8.50	\$4.00
2 ft. 10 in. x 6 ft. 10 in.	1 1/2 in.	Price 8.50	4.00
3 ft. 0 in. x 7 ft. 0 in.	1 1/2 in.	Price 9.00	4.50



B.L. No. 316, 1-Cut Oak

A beautiful and high-class design of inside door

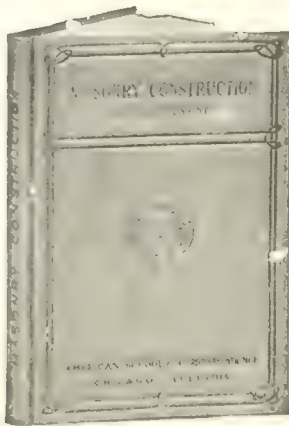
If you do not see the styles of doors here you wish, send for our 1913 catalog, free to readers of The Canadian Builder

## West Toronto, Canada

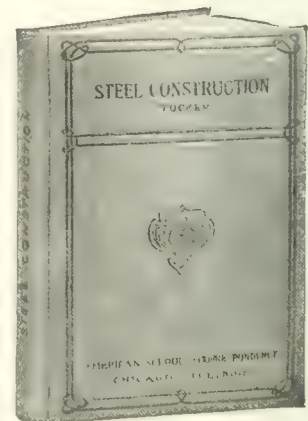


# Practical, Moderate-Priced HANDBOOKS

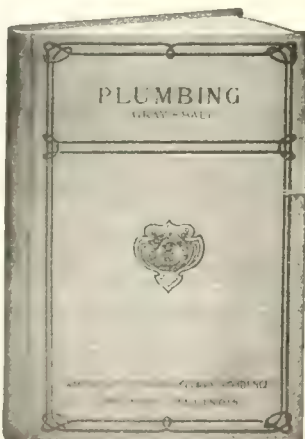
*For the Contractor, Architect, Carpenter  
and Builder*



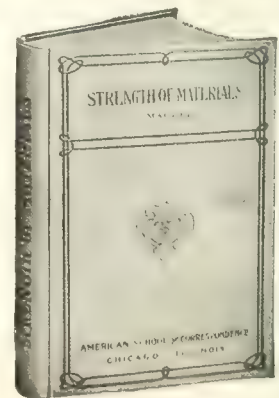
**MASONRY CONSTRUCTION.** By Alfred E. Phillips, C. E., Ph. D., Professor of Civil Engineering, Armour Institute of Technology, and Austin T. Byrne, Civil Engineer. 145 pp., 44 illus. Cloth binding. A handbook of practical information for Stonemasons, Stonecutters, Bricklayers, Cement and Concrete Workers, etc., embodying the latest and best American practice. It describes the various kinds of building stone; manufacture of brick, cement, and mortar; methods of test; foundation work, pile-driving; dam and wall construction; arch and bridge construction; reinforced concrete, etc. Price.....\$1.00



**STEEL CONSTRUCTION.** By E. A. Tucker, S. B., Architectural Engineer, American Society of Civil Engineers. 308 pp., 287 illus. Cloth binding. An up-to-date work containing a fund of invaluable practical information based on actual experience, special test, etc., for the use of Architects, Bridge Builders, Contractors, and Civil Engineers. This book will be found a most complete and serviceable guide covering every phase of the use of steel in structural work of all sorts, steel shapes, and fireproof construction; calculation of shapes; frame connections and details; foundations; high-building construction; mill building, etc. Price.....\$1.50



**CARPENTRY.** By Gilbert Townsend, S. B., with Ross & McFarlane, Montreal. 160 pp., 224 illus. Cloth binding. A working manual for Carpenters and Woodworkers in general. Giving complete practical instruction in the selection of the various kinds of lumber, layout of the house, construction of the frame, floors, roof, windows, gables, etc., with abundant suggestions of practical value to everybody. Not a theoretical treatise, but a practical working guide. Price.....\$1.00



**STRENGTH OF MATERIALS.** By Edward Rose Maurer, B. C. E., Professor of Mechanics, University of Wisconsin. 150 pp., 58 illus. Cloth binding. A work of great value to Architects, Builders, Designers, Steel and Concrete Workers. Strength of timber, wrought iron, steel, cast iron, brick, stone, etc., under all loads; strength of built-up sections; strength of beams, columns, shafts, riveted joints, etc. Price.....\$1.00

**PLUMBING.** By William Beall Gray, Sanitary Engineer, and Charles B. Ball, Chief Sanitary Inspector, City of Chicago, American Society of Civil Engineers. 256 pp., 250 illus. Cloth binding. How to select the fixtures for jobs of any size; the installation and repair of hot and cold house-water supply, siphoning and antisiphoning traps; diagrams of pipe connections; septic tanks; drains; soil pipes; pipe fitting; wiping joints; gas fittings; plumbing regulations. Price.....\$1.50

*Send order to*

## The Commercial Press, Limited

32 Colborne Street, Toronto



# SEMI-READY HOMES

## *What They Are and Why You Should Use Them*

### THE SEMI-READY

Home is a Building on exactly the same lines as the ordinary construction, **except—and the big point is this**, it is all prepared at the factory ready to erect.



### *Our Way*

**YOU** send us a sketch of the style of house you want and what price you are prepared to pay.

We will make plans of what we can do for you along with a price which includes everything for your house from the foundation to the locks on the doors.

In adopting our system you save—

1. Architects' fees;
2. Retail lumber profit;
3. Retail profits on glass, hardware and paint;
4. Worry—because all you have to estimate on is the freight and cost of erection.

How do we manage this? Because we handle the lumber from the log to the people. We are wholesale agents for glass, hardware and paints, and import them in large quantities. We will ship a house of average size in ten days from date of order. Should you decide not to build after we have prepared special plans for you we will charge you a fee of \$10.00 for the plans.

### *The Other Way*

**YOU** decide to build and employ an architect to draw plans and get estimates and this will cost you 5 per cent. of the cost of the house. You then on your estimate have to pay wholesale and retail profit on lumber and other materials as well as a profit of 10 per cent. to your contractor on same.

You have the worry of arranging and dealing with several firms such as the carpenter, painter, glass merchant, hardware merchant and the architect.

It has been proved by everyone who has built a house or building of any kind that the estimates are usually exceeded by twenty-five or thirty per cent.

The principal worry is that, having so many contractors to deal with—your house usually takes from six to twelve months to build.

**MORAL:** Better to deal with one firm who can save you time, money and worry, and who are specialists in this particular business.

### **We are Specialists in**

Planing Mill and Interior Fitting Work of all kinds, including sash, doors, panelling, stair work and everything pertaining to a building, from the lintels of the basement to the buffet in the dining room.

*See our representative at 709 Kent Bldg., Toronto  
or write to us*

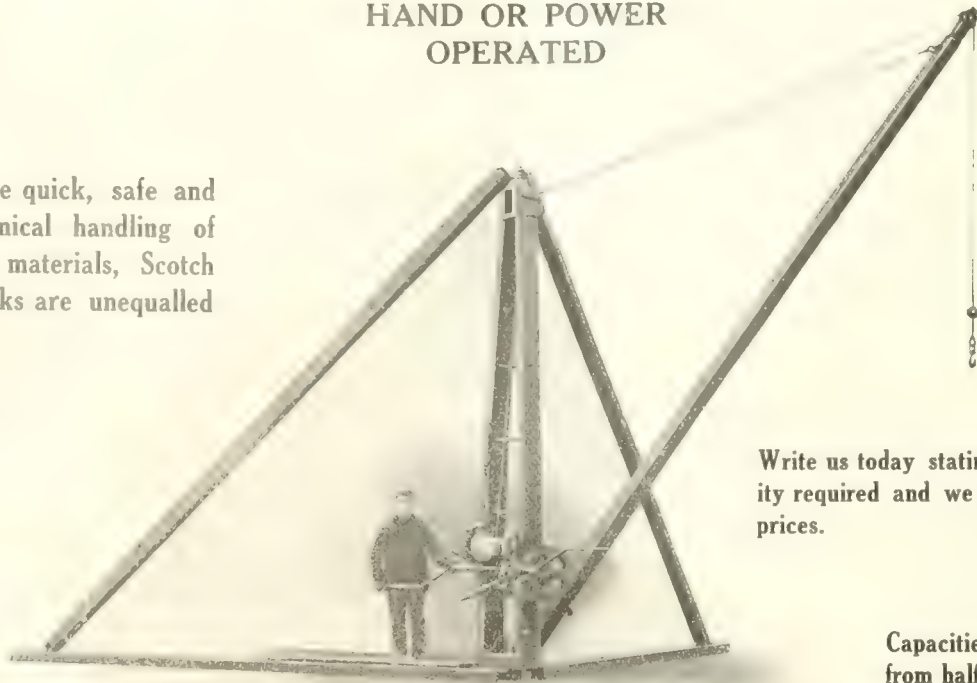
**H. M. Lickley, Limited,** GRAVENHURST  
Ontario



# BEATH SCOTCH DERRICKS

HAND OR POWER  
OPERATED

For the quick, safe and economical handling of your materials, Scotch Derricks are unequalled

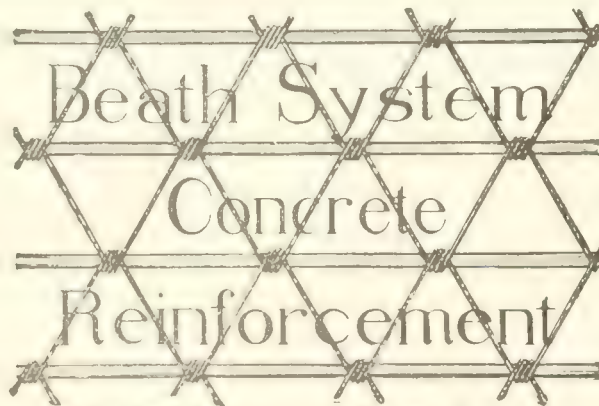


Write us today stating capacity required and we will send prices.

Capacities ranging from half-ton up

## Standard Scotch Derrick for Hand Power

Beath Scotch Derricks represent the best of their kind in use to-day. No guess work enters into their make-up. Our staff of Engineers are thoroughly conversant with Derrick Construction. Every detail has received careful consideration, the materials carefully selected, and all parts substantially proportioned, the whole forming a thoroughly dependable machine. *Investigate the merits of Beath Scotch Derricks.*



Beath System of Concrete Reinforcement, Style No. 23.

The Beath System of Concrete Reinforcement—Mesh and Bars—applicable to all Reinforced Concrete Construction work offers advantages which cannot be obtained in any other system.

We have supplied our reinforcement on some of the largest works in Canada, among which are:

11 Transformer Stations for the Hydro Electric Commission  
Emsdale Power Company, West Toronto  
Petrolia Bridge Co., Petrolia, Ontario  
Hamilton Sewers, Hamilton, Ontario  
Filtration Plant, Toronto, Ontario  
Robert Simpson Co., Toronto, Ontario

These and others have found it entirely suited to their requirements. Can you afford to overlook the Beath System of Concrete Reinforcement?

Our Engineering Department is at your service for preparation of estimates, plans and advice on Reinforced Concrete Construction.

Detailed information on request

## W.D. Beath & Son, Limited

TORONTO

20-30 COOPER AVENUE

CANADA





## Bungalow with Cobble Stone Pillars and Foundation Front

*Architect: Holman & Gotch, Calgary  
Built for: Mr. H. Armand, Bowness*

STAFF ARTICLE

**H**OLMAN & GOTCH, Calgary, designed a very attractive bungalow for Mr. Armand, Bowness, near Calgary. The special feature that attracts first attention is the effect of the cobble stone foundation and verandah pillars.

The bungalow is 37 ft. 6 in. x 49 ft., built on a 9-inch wall of concrete with a facing of cobble stones above the ground. The verandah is 35 ft. 5 in. across the front and a depth of 8 ft. There is an addition to the lobby on the west side of 8 ft. 8 in. x 8 ft. The entrance is into a lobby 8 ft. x 8 ft., where there is a permanent seat.

The lobby opens directly into the living room, 27 ft. 8 in. x 16 ft. 8 in., which is well lighted on the south and west. Along the south is an arrangement of six windows with a built-in seat extending along the whole length of the windows. Directly opposite is a large fireplace. The living-room has beam ceilings.

Along the east side are two bedrooms and the bathroom. At the north-east corner is an entrance to a sub-hall from the living-room. From this hall, the pantry, stairs at attic, back or front bedroom, bathroom or living-room may be reached direct. The front bedroom may also be reached direct from the living-room.

The front bedroom is 17 ft. 11 in. x 13 ft. 4 in., and is well lighted on the south and east. On the south side

are two commodious cupboards. The bathroom is 6 ft. 6 in. x 9 ft. 4 in., and contains a three-piece set.

The back bedroom is 13 ft. 4 in. x 13 ft. 1 in., and is well lighted on the north and east. It has a commodious clothes closet. The sub-hall is L-shaped and is 4 ft. wide.

### Dining-Room and Kitchen Arrangement

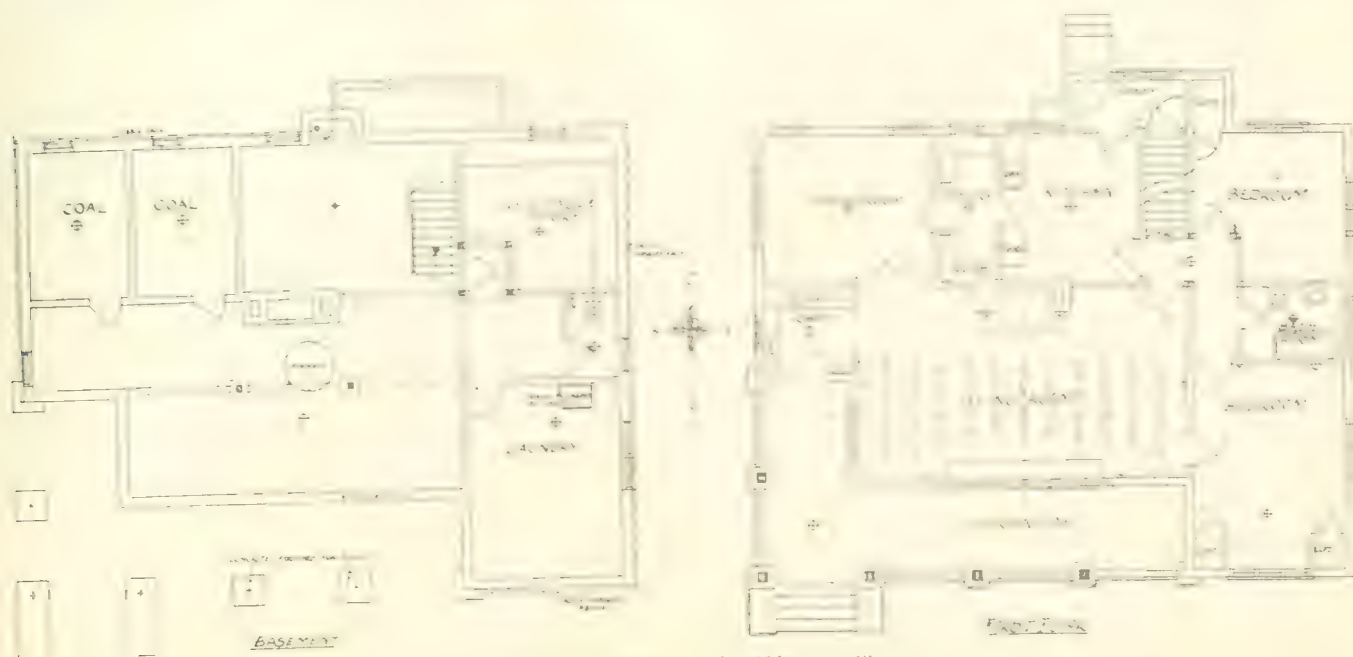
The dining-room and kitchen are arranged along the north with a pantry between. The dining-room is 13 ft. 1 in. x 14 ft. 10 in., and is connected with the living-room by two 2 ft. 6 in. x 6 ft. 8 in. swinging doors. A built-in buffet is one of the useful and decorative pieces of furniture in the dining-room.

The door to the pantry is exactly in the centre of the east wall of the dining-room. The pantry is 13 ft. 1 in. x 5 ft., and is amply supplied with tables and cupboards.

The kitchen is 11 ft. 10 in. x 13 ft. 1 in., with a rear entrance through a lobby. The entrance to the basement is also reached through this lobby, the stair being under the one leading to the attic rooms.

### The Basement Layout

The foundations, walls and verandah pier footings are of concrete, the basement walls being 9 ins. thick.



Floor plans of bungalow with cobblestone pillars

The cobble stones project three inches beyond this, making the wall measure 12 ins. thick.

The basement is divided up into various compartments. The vegetable store is 13 ft. 3 in. x 13 ft. 6 in., laundry is 16 ft. 10 in. x 13 ft. 6 in., and the furnace-room is 16 ft. 10 in. x 28 ft. 1 in., with a small addition at the west side. There are two coal bins, one for hard coal for the furnace and one for soft coal for the grate. These bins are 13 ft. 3 in. x 9 ft. 2 in. and 13 ft. 3 in. x 8 ft. 8 in. respectively. There is also another compartment 13 ft. 3 in. x 17 ft. 11 in. for general storage. There is also a lavatory in the basement, as shown in the basement plan.

The layout of this bungalow is almost ideal in its economy of space and in the relation of one room to another for convenience. A rearrangement could easily be made to suit a smaller lot.

### New Church for Regina

The Fourteenth Avenue Methodist Church congregation, Regina, intend erecting a substantial church edifice within the immediate future. Clemensha & Portnal, the Regina architects, have been requested to prepare the plans. The plans have now been completed and submitted to the congregation. The church, Sunday School, class rooms and parsonage are arranged in such a way as to enclose a sports court on

three sides. Leading from the parsonage to the church at the front is also a covered passageway. Towering above the church is a high decorative tower.

### Scarcity of N.B. Clear Shingles

At the present time there is a noticeable scarcity of N. B. clear shingles, and prices are high. For a while there was a considerable quantity on the market, owing to the fact that the New England States were not calling for them. Of late, however, the markets nearer the

#### ARTICLES IN CANADIAN BUILDER WERE JUST WHAT HE WANTED.

Enclosed find \$2.00 to cover subscription to The Canadian Builder and Carpenter for two years.

The articles in your paper on septic tanks are just what I require, as I am building up a new district just taken into the city. We expect a new sewer will be put in, but it will be some time before this locality will be served.

J. A. MATTHEWS,

London, Ont., July 18, 1913.

Contractor and Builder.

source of supply have been taking the major part of the output, with the result that deliveries to Ontario and points further west have been small, and the price has gone up to \$3.85 per thousand.



Plan and elevation of new Methodist church to be erected in Regina.



# Gypsum Blocks—Their Value for Partitions : : : :

By  
Eric A. Forson

**T**HERE are two materials used for constructing fireproof partitions—hollow tile and hollow gypsum blocks. The former material was dealt with in *The Canadian Builder and Carpenter* a couple of months ago. The purpose of this article is to give some information on the second fireproofing material—gypsum blocks.

## Description of Gypsum Blocks

What are fireproof gypsum blocks and what are they used for? Fireproof gypsum blocks are a fireproof material composed of pure gypsum plaster, bonded with a high-class fibre, and made into block form, in sizes two to six inches in thickness, twelve inches in height and twenty-four inches in length. They are used for fireproofing structural steel, for wall furring, partitions, book tile, insulation from heat and cold and for deadening sound.

## Used Mostly for Partitions

For fireproof partitions, gypsum blocks are ideal. They are light in weight, sound proof and rigid, and can be plastered as soon as set, without fear of discolouring the plaster. They require only one-quarter to one-half inch of plaster on a side to finish. On account of the absence of gritty substances, the blocks can be sawn like wood, making all joints close and perfect. This also reduces repair bills, for they can be taken down by sawing, doors and windows can be cut into partitions, and decorations on adjacent work need not be injured. Then, too, this absence of grittiness permits of the trim being nailed on without the use of plugs or nailing strips.

## Non-conductors of Heat or Cold

Gypsum is probably the best non-conductor of heat known commercially and is incombustible. Gypsum blocks have a co-efficient expansion of zero and do not expand when the temperature rises to an abnormal degree, but remain firmly in place, thus protecting that which they cover. Tests have proven that less than 5 per cent. of the heat on the fire side reaches the opposite side of the block. The man who erects the bigger building will appreciate this when he realizes that steel depreciates 10 per cent at a temperature of 800 deg. and 50 per cent. at 1700 deg.

Gypsum block is also a non-conductor of cold. A liquid air test was recently made with a box of 3 in. partition material, the inside dimensions being 6 in. x 6 in. x 12 in. These blocks were cemented together with a specially insulated material, and the outside covered with a 1½ in. coat of the same material. This box was in turn placed inside of a wooden one, leaving a space of 1½ in. between them. The temperature of the air between the boxes was 67 deg. Five quarts of liquid air at a temperature of 313 deg. below zero were poured into the box, and at the end of forty-five minutes the temperature in the space between the boxes had been lowered but four degrees.

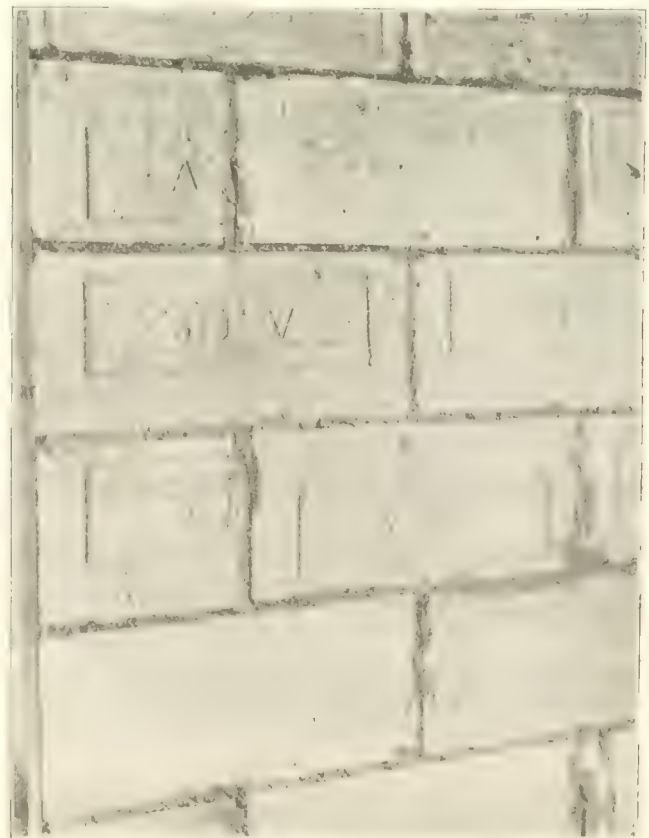
## Rigidity is a Feature of Gypsum Blocks

The rigidity of gypsum blocks is unquestionable.

Marble or other heavy waiscoting, lavatories and other plumbing fixtures may be fastened to the wall without fear of creating a heavy pull upon the partitions. Under test, a block has been shown to have a crushing strength of 660 pounds.

## They are Sound Proof

The fundamental reason for the construction of any partition can be stated in one word—privacy. A partition that gives privacy from sight only, performs but half of its mission. Irrespective of the character of the building in which it is installed, a partition must be sound-proof in order to accomplish the full purpose for which it is intended. This feature assumes the highest importance in hotels, apartment houses, educational institutions and buildings devoted to musical purposes. Tests have proven that gypsum blocks are sound proof. Recently a room, four feet square, was constructed, with the bottom, walls and ceiling of four-inch hollow blocks. A four-inch electric gong was put in and four dry batteries hitched to this. The building was closed up, the "juice" turned on, and, at a distance of 50 feet away, the sound could scarcely be heard. This test can be considered an extreme one. The density of sound varies according to the distance it travels. In this small room, the medium of sound was only two feet



Section of a wall made of pulpstone gypsum blocks in the "Midmaples" apartment house, Huron St., Toronto. All partitions throughout this building are made with this material.

away from any wall, while in an ordinary room it would be eight or ten feet.

### For Furring

Gypsum blocks are the ideal material for brick and stone walls because of the ease and rapidity with which they can be laid, their fireproofing qualities, their insulation from cold from without, and their efficiency as a preventative of dampness in the rooms thus protected.

### How to Use Them for Furring

A number of styles of block are used for wall furring, all being laid in the same manner as the partitions. For ordinary ceiling heights a ribbed furring block 2 in. thick is used. The furring is laid with a half-inch air space between the block and the wall, and is fastened to the wall at frequent intervals with anchor nails driven through the block into the points of the brick or stone work. When the furring is to be standing free a thicker block is required, laid in the same manner as the partitions.

### Light and Economical

On account of their lightness the blocks can be easily handled in spite of their size. A mason can accomplish a great deal in a day and save time in laying. They require less mortar and all partitions can be figured net, i.e., all openings out, and the mortar joints will more than take up the waste. On account of their lightness, less structural steel is required to support their weight and big savings are effected through this.

### Sizes to Use

The thickness of block to be used depends on whether a wide or narrow reveal at door openings is desired, and also on the height of the ceiling. Where the clear height from the floor to the ceiling is eleven feet or less, 2 in. solid or 3 in. hollow blocks may be used, under ordinary conditions. Where the height of the ceiling exceeds eleven feet, 3 in. hollow blocks may be used up to a height of sixteen feet; above which 4 in. or 6 in. hollow blocks are recommended. The blocks should be laid directly upon the fireproof floor. They may be laid to the soffit of the floor above, or stopped at the suspended ceiling, as the architect thinks best. In laying, joints should be broken. This gives an excellent bond and a strong partition.

Some of the newer buildings in which these blocks have been used are the Chateau Laurier, Ottawa; C. P. R. hotel, Calgary; Royal Trust Bldg., Montreal; Sauvegarde Life Bldg., Montreal; Kent Bldg., Toronto; Athelma Apartments, Toronto; and the new Birks Bldg., Montreal.

## A Safety Margin for Motion

When the winning run for the home team comes across the plate in the ninth inning, and every fan in the grand stand jumps to his feet with delight, the steelwork of the stand has to brace up its back and carry for an instant nearly double its ordinary load.

An American engineer, who was not satisfied with the old rule-of-thumb figuring on the loads that stands, theatres and bridges must carry, has carried out some experiments showing the surprising difference between the apparent weight of a crowd sitting quietly and the same crowd jumping up or running from one side of a bridge to another to see a passing boat race. He found that a man who weighed one hundred and fifty-five pounds sitting on a chair on the scales for an instant apparently weighed two hundred and seventy-five pounds as he suddenly stood up; and when he

jumped up and jounced the scales shot up even higher.

The safety margin of load ordinarily allowed for stands and floors takes care of this extra weight unless the whole crowd starts jouncing in unison. He discovered, however, that a crowd hurrying and then suddenly stopping, like a crowd running across a bridge from side to side or rushing on a wharf from a steamer, gave a horizontal push to the floor that might equal the weight of the crowd, which has not been properly guarded against in designing many structures.—Saturday Evening Post.

## A Fine Western Store

The Sherwood departmental store, as shown in the accompanying illustration, is three storeys in height, and covers one and one-half acres. The footings and steelwork are calculated to carry five storeys, as it is proposed to add another two storeys as soon as the business of the firm expands sufficiently to warrant it. Much interest is being taken in the steelwork of this building. It is of the System M, and the Sherwood store is the first in Canada where this class of construction is in use. Of the best modern design, equipped throughout with all the conveniences which it is usual



The Sherwood departmental store, Regina, Sask., erected at a cost of \$1,000,000. The steelwork is of system M variety.

to associate with the stores of the larger American cities, the building will be unsurpassed by any other edifice in the Regina retail district. It has 86,000 square feet of selling space.

The street front of the building will be in ornamental terra cotta, and of pressed brick. Between the windows of each floor ornate iron panels will be installed, and over each entrance large canopies in ornamental iron will also be provided, overhanging the sidewalk for several yards. A pneumatic tube cash conveying system will be installed on each floor, while a branch post office, railway, express and theatre ticket office will be among the most important innovations to be introduced by the Sherwood Company. A modern sanitary soda fountain, ice cream factory, and bakery, luxuriously furnished rest room, writing room, public lunch room and a completely equipped hospital for the use of customers and employes will be several other new features. Throughout the building the furnishings will be mahogany. Brown & Valence of Montreal are the architects.

Rust spots may be removed from marble by applying a mixture of one part nitric acid and 25 parts water, rinsing off with a solution of three parts water and one part ammonia.



## Quantity Surveying—Used in Europe and Being Introduced in Canada : : :

*General explanation and a few of  
surveying as applied to tendering  
for contracts. By Wm. Barbour  
of the Dominion Appraisal Co.,  
Wellington Street East, Toronto.*

**Q**UANTITY surveying, or estimating by bill of quantities, although not yet adopted in a general way in Canada, is, nevertheless, extensively used in the Old Country, and the writer thinks that it will only be a matter of time before it is in general use here.

The quantity surveyor, or measurer, as he is sometimes called, is prominent among the professional men in the Old Country, and his work is closely allied to the architectural profession.

In many of the smaller towns the duties of quantity surveyor is carried on by the architect, who styles himself an architect and quantity surveyor. In large cities the architect's duties are so numerous that he finds it impossible to cope with this business and give the due amount of attention to his architectural work. Consequently the quantity surveyor has a separate practice entirely. He may be closely allied to several architectural firms with whom he works in conjunction, but he may do business for corporations, boards, or the general public, and may be appointed by them separately, thus placing him on an independent footing, being neither interested in the client, architect nor contractor. He acts as a disinterested third party, favoring neither.

In England and some parts of Scotland, bills of quantities are prepared from the architect's plans and specifications, taking care of all the trades under one general contract, and the contractor is paid on the amount of this contract, as detailed therein. Deviations and variations from the contract are measured and adjusted at the completion of the work.

### Method Adopted in Scotland.

In Scotland, where the writer is acquainted with the general custom, the following method is usually adopted, and although it may have its defects, I think, taking the whole of the facts into account, the general system or mode adopted in Glasgow is a very satisfactory one. Plans and specifications are prepared and details furnished by the architect, and the quantity surveyor takes off quantities in his office, each item being billed under a special head, and the meaning of the specification is embodied in the estimate of quantities. Total quantities for each item are shown in a column directly after the general description as to workmanship and materials, and each item is numbered consecutively throughout.

In the first place, a draft estimate is prepared, embodying the various items, the quantities are taken off and extensions made and carefully checked. The sum total quantity is then arrived at, and typewritten copies of each work are issued. Say six contractors are offering for the mason, brick, or carpenter work, ten copies would probably be prepared, so that extra copies can be had, a blank and a priced for the contractor, and a blank for the architect for reference when detailing

the work. Appended to each bill of quantities is a copy of condition of contract and a letter of tender.

The contractor, before filling in the prices, usually calls upon the architect to look over plans and ascertain the extent and nature of the work, although the items are usually so fully described that very often this is unnecessary. Rates are then filled in the rate column and he extends the various items in another column for this purpose, making up his total tender.

The estimates, or schedules, as they are sometimes called, are, after being filled up, usually returned under seal to the architect, who in turn hands them over to the quantity surveyor to be checked. This is carefully done, corrections or errors being taken note of in red ink, and the sum revised if there has been an error in an extension or addition shown. The prices are also noted, and by comparing each of the contracted schedules for this purpose, any glaring error in pricing can be detected, and after this has been done, the sum totals are made known to the client, who in turn, through the architect, decides upon whom he wishes to do the work.

Very often the lowest tender is accepted, although a clause is always put into the conditions of contract stating that lowest or any offer may not be accepted. In the event of the lowest tenderer not being bona fide or having put in a foolish price with the idea of scamping the work, the client can use his discretion as to whom he will award the contract.

After this has been settled, the architect usually writes a letter of acceptance, on behalf of the client, and the work is proceeded with. The contractor gets a blank estimate for use on the job, and the priced copy he usually retains in his office for his own private information.

### Re-measuring the Work As It Proceeds.

As it was asserted in many cases that a correct estimate of the quantities could not be prepared from plans without there were very complete, the idea occurred to some one many years ago that it would be better to re-measure the work at the building, as the work proceeded, and after completion, carefully noting and analyzing everything from the excavation to the hardware. This method is used in Glasgow and West of Scotland generally, the exact quantities, or as near as can be, being got from the actual building and described and priced at the estimate rates. The estimate of quantities may differ a little from the actual measurement, but of course, if these have been taken off accurately from the plans in the first place and very few changes made in the manner of carrying out the work, these may compare very favorably one to the other. Extra work not included in the estimate is described and priced at prices conforming to estimate rates, and where there is nothing of a similar nature for comparison, the contractor's price is revised by the architect, who acts as arbiter. If too high, it is usually adjusted by him.

Quantities are fully shown, so that the contractor may have a chance of checking, if he so desires, al-

\*The writer of this article is a trained quantity surveyor and has adopted a method of estimating and billing quantities suitable to Canadian conditions. He will be pleased to hear from anyone interested regarding this subject and to answer any logical inquiry relative thereto.

though the measurements and quantities are usually so thoroughly checked and gone into by the measurer that this is rarely resorted to or necessary, as the contractor usually depends upon the measurer for accuracy.

After the measurements are taken at the building by the measurer, who is always accompanied by a junior to do the marking, and the contractor, who holds the tape line, giving explanations regarding the work, and seeing that he gets justice, the data is gathered together and billed in the same form as estimate, all the items being numbered that correspond, and relative prices being appended. The measurement is forwarded to the contractor with a note for revision, and for any extra prices. It is afterwards returned to the measurer, who enters the rates and notes any changes or extras, extends and sums up the total and again returns it to the contractor. The contractor then forwards it to the architect, who issues certificate for the amount.

The fees for this work are usually  $2\frac{1}{2}$  per cent. on the contract total,  $1\frac{1}{4}$  per cent. being for estimates and  $1\frac{1}{4}$  per cent. for re-measurement, or readjustment of deviations, variations, additions, or deductions, as the case may be. One-half is usually paid by the client and the other half by the contractor, although the client in a great many cases, pays the full fee himself.

#### Advantages of Re-measuring.

A few of the special advantages by this method of tendering are:

1—It ensures all contractors offering upon the one basis, and the one set of quantities (duplicates being sent to each).

2—It obviates all the trouble of contractors measuring from plans themselves, and arriving at quantities.

3—Cuts down by about one-fourth the amount of work generally entailed by contractor.

4—Ensures accuracy in figuring, as all quantities are taken off and calculations made and checked by experts who make a specialty of this business.

5—It saves time in procuring tenders usually wasted by one contractor waiting upon another for plans.

6—It saves the trouble of getting out duplicate sets of blue prints, which accumulate very rapidly, on an architect's hands.

7—It saves the contractors writing out a description of the work for the architect, showing how he arrived at his figures and sum totals.

8—If all tenders are to be sent in on one date it helps to ensure absolute secrecy as to amounts leaking out.

9—It ensures the specification being properly interpreted by the contractor.

10—It provides a note of the estimated quantity of materials going to form the building, which the contractor can refer to at all times. And there are many others too numerous to mention.

#### Architects and Builders Must Come Together.

Before this system can become general throughout Canada, however, it will be necessary to get the support and co-operation of the architects and contractors who, if they consider the various arguments for and against, will find that it will be a benefit to all parties concerned. It is known that many of the contracting firms, as well as the architects, are far from satisfied with the existing state of affairs with regard to tendering for contracts. It would also be necessary for the architects and contractors to meet and frame a mode of rules regarding the method of measuring and allowances to be made.

## Elliot Woodworker Agents in Western Canada

Mr. William A. Elliot, Toronto, manufacturer of the Elliot woodworker, has returned from a three-months' trip through Western Canada, where he has appointed agents as follows: Fort William and Port Arthur, Mahon Brothers, electrical contractors, Fort William; Winnipeg, William H. Rosevear & Sons, 445 Main St.; Edmonton City, Harry Rae, 1323 25th St.; Calgary and Alberta, Hugh Rennie, Loughheed Building, Calgary; British Columbia, William N. O'Neill, Seymour St., Vancouver.

Mr. Elliot demonstrated his machine at various centres throughout the West, and met with much success. When he arrived in Edmonton he showed it in the Hudson Bay Company's new building. Mr. Cronyn, chief engineer of this company, was so taken up with it that he placed an order for two machines, one for Edmonton and the other for the firm's new place in Calgary.

Altogether about eighteen machines were sold by Mr. Elliot, and prospects for the future are bright.

Speaking of his impressions of the western country, Mr. Elliot said: "All over the West I found the same story—that real estate values were away up, and money tight. In Edmonton they are asking from \$1,000 to \$1,500 a foot for property five miles from the centre of the city. While the city is bound to grow, it will be some time yet before the business centre gets out that far. However, crops are looking exceptionally fine, and everyone is optimistic.

"To my mind, the Peace River district is going to be a big thing. Around Edmonton, on account of the excessive rains, they have difficulty in growing wheat, but further north there is less rain; the seasons are about two weeks earlier, and excellent crops are secured. The C. N. R. and another small railway already run through there, and it will not be long until the Grand Trunk Pacific covers that ground.

"In the building trades things are a little quiet, although houses are scarce, and I found a number of men out of employment. This, I think, is owing to the tightness of money. Loan companies will not let money out of their hands. Business men state that this is a good thing, for it is teaching the people to pay cash. However, things are gradually looking brighter, and when they get 'right' everything will be better than ever.

"Some fine buildings are going up on the coast. At Shaughnessy Heights, a new suburb of Vancouver, I saw some very fine houses. This is a restricted area, and no houses that cost less than \$7,000 can be put up.

"They say first impressions are lasting. My first impressions of the West were excellent, but I would not advise a good mechanic going there for the present at least."

## New Sand Lime Brick Plant or Hepworth

A Mr. Trask, of Owen Sound, Ontario, has discovered big possibilities in the extensive sand area lying between Shallow Lake and Hepworth, near Owen Sound, and has formed a company for the manufacture of sand lime brick. It is his intention to build a large plant. Samples of brick made from this sand and a specially prepared lime have been turned out, and show fine texture and other good qualities.

The Berlin Housing Co., Limited, Berlin, Ontario, has received provincial charter. Capital stock, \$500,00.





OFFICIAL STARTER J. M. SCOTT.

## Annual Outing of Toronto Builders' Exchange

BY A STAFF REPRESENTATIVE

**T**HE annual picnic of the Toronto Builders' Exchange was held on Tuesday, July 22. Members and their families and friends to the number of 300, left on the nine o'clock boat for Queenston Heights. The day was ideal, and after a pleasant sail, the picnickers arrived at Brock's Monument at 11.45. Soon after arrival, the dinner bell was sounded, and for those who were fortunate enough to have lunch baskets, tea, coffee, milk and ice cream were provided. The single men and grass widowers had to adjourn to the pavilion for their "beans."

The meal over, Charlie Bulley and his band of baseball enthusiasts took possession of the diamond to get into shape for the trimming they proposed to hand the West End team, under Captain Jack Scott.

### The Races.

At two o'clock the official announcer called the players off the field and prepared for the races. The programme included events for everyone, from wee tots to the men who had been in business for twenty-five years and over, and good sport was provided. There were boot races, partners' needle race, married men's smoking race, and a soap race for ladies. The prizes donated were excellent.

The race for single ladies, 17 years and over, was a corker, and uncovered a dark horse in Miss J. McCallum. Miss Dorothy Woodland was second, and Miss Dickson third.

The 100 yards men's dash provided the best race of the day. About 25 men faced the starter, and when Official Starter J. M. Scott gave the word to "Go" E. J. Chatterton, of the B. O. T. Manufacturing Company, broke away and was never headed. J. Cronin, assistant secretary of the Exchange, was second.

When the call was made for entries for the married ladies' race, the shyness and modesty of the fair sex presented itself, and only five lined up to take a chance on winning some fine cut glass. After a grand race and numerous spills, Mrs. Richardson was returned the winner, Mrs. Scott second, and Mrs. Forson third.

The married men's smoking race was the most amusing on the programme. Each contestant was given a corncob pipe, some tobacco and a box of matches. The conditions of the race were that the men start from one point and reach another with their pipes going. No pipes, however, were to be lighted until the command was given by the starter. At the word "Go" there was a wild scramble. Some of the men laid down flat

and others twisted themselves in various shapes to protect the flame from the tricky wind. Alex Stewart was the first to cross the finishing line with his corncob blazing away, and received first prize, a handsome pipe, donated by Britnell and Company.

The last race on the programme was for heads of firms who have been in business for 25 years or more. A special prize was given for this race by the B. O. T. Manufacturing Company. Lined up before Starter Scott were George Gander, Walter Davidson, H. R. Whetter, Jack Nelson, John Aldridge, Harry Beaver, J. C. Claxton, Wm. Forbes and John Maloney. At the crack of the pistol the field was away in a bunch, but Harry Beaver soon showed the prowess for which he was noted in his younger days, and came home an easy winner.

### The Big Event of the Day.

Immediately after the races the big event of the day, the baseball game between the East and West, was announced. The East team, under Captain Charles Bulley, took the field for preliminary practice, and showed rare form. Jack Scott soon forced Bulley's men off the field, and put his own men in to warm up. This over, Umpire John Aldridge announced that the teams would line up as follows:

#### West Team.

V. Vokes.  
Jack Cronin.  
Jack Scott.  
Jim Munro.  
Harry Bayliss.  
M. Sherris.  
Charles Penn.  
Bill Clark.  
H. Fussell.

#### East Team.

C. F. Herr.  
P. L. Fraser.  
A. S. Haire.  
A. Burnett.  
George W. Britnell.  
Charles Bulley.  
Charles Oakley.  
Jim Robertson.  
Ed. Curry.

The fun started right from the time "play ball" was called. The West team had on their batting togs, and in the first innings piled up ten runs off Charlie Bulley and Charlie Oakley. Errors by Haire, Britnell and Burnett also contributed to the slaughter. When Bulley's team came to bat they were unable to solve Cronin's slow delivery, and were retired scoreless. In the West team's second turn at bat they put seven more runs over before the side was retired. The East broke into the score column in this innings and scored three runs.

After the second innings, Captain Scott's men showed their generosity and allowed Bulley and his crew to come within hailing distance.

In the third round Captain Bulley started a riot by

abusing Empire Aldridge, and was ejected from the game. Mr. Aldridge finally got into hot water himself, and was forced to give way to John Wickett, Sr., an East End man. With Mr. Wickett's help and the aid of numerous errors on the part of Scott's team, the Eastern men gradually crept up, and when the game was called at the end of the fifth innings, the scorer's book read: West 17, East 10.

#### Notes of the Game.

Secretary Flower made his first attempt at bat.



Secretary Flower makes his first attempt at bat.

but redeemed himself later by making a spectacular catch in deep centre field.

Charles Oakley started out early to show his enmity towards Westerners by hitting the first man up.

"Fat" Vokes ran wild on the bases, and featured the game with his hitting.

"Detective" Cronin's slow ball was working like a machine.

Doc. Steele and Chatterson substituted on the East team.

Umpire Wickett was mobbed by the West team, and had to be escorted from the grounds.

Harry Bayliss and his acrobatic stunts pleased the crowd.

Harry Bayliss and his acrobatic stunts pleased the crowd.

When Vokes stood on the base line at home plate, the runner had either to go round or put in a call for an umpire.

Secretary Flower was content to sit down and watch the game from the side lines. There was a reason.

#### Supper, Then Home.

Soon after the game, lunch baskets were opened, more tea and ice cream served, and preparations made for the return trip. The boat left Queenston at 6.30, and landed at Toronto at 9 o'clock.

Credit must be given President Bulley, Secretary Flower and the committee for their part in the work of arranging the outing. The committee consisted of Chairman, G. Oakley, Jr., C. Bulley, G. W. Britnell, E. J. Curry, Walter Davidson, James Munro, J. M. Scott, and John Westlauffer.

#### Those Present.

Some of those present, besides the committees, included: George Teagle, of Teagle & Sons; A. S. Haire and C. F. Herr, of the Alabastine Hardmortar Co.; V. Vokes, cut stone merchant; Harry Jennings, George Oakley and Charles Oakley, of Oakley & Son; Charles Penn, of the Ontario National Brick Co.; Harry Whetter; P. L. Fraser, the Ontario National Brick Co.; John Aldridge, H. Alden, Ohio Quarries Co., Buffalo; Ben Brick; James Crang; Frank Saunders; James Hewitt; John Maloney; Ed. Gearing; Thomas Cannon; Mr. Henry, of Henry & Sons; Mr. Taylor, of Taylor & Nesbitt; Mr. Petrie; J. Flower; E. J. Currie; Mr. Chatterson, of the B. O. T. Mfg. Co.; Mr. Ryan, of Simpson Planing Mills, Limited; Mr. Hannah, and Mr. Nelson, of Hannah & Nelson; Mr. Brown, of Brown & Cooper; Mr. Hickley, of Hickley & Brennan; A. W. Stewart, Cleveland Consolidated Stone Co.; H. Terrill, Cleveland Stone Co.; R. J. Orr, of Orr Bros.; Mr. Corkin; J. Robinson, of Nicholson & Curtis, and Eric A. Forson, associate editor, The Canadian Builder and Carpenter.

Clark, of A. Clark & Sons; H. Hagus, of Petrie Machinery Co.; H. Fussell, of Fussell & McReynolds; Jack Green, assistant secretary of the Exchange; Sam Young, Sr.; Thomas Painter and And. Painter, of Painter & Sons; George Gander, Doc. Steele, of Standard Brick Co.; M. Sherrie, of Oakley & Sons; A. M. Spears, of the Asbestos Mfg. Co.; T. Palmer, Eglinton; A. Burnett, Meaford Brick Co.; E. L. Forbes, of E. L. Forbes & So.; Wm. Forbes, Walter Slater; John Wickett, Sr., Wickett Bros., Limited; J. C. Claxton, Harry Whetter; P. L. Fraser, the Ontario National Brick Co.; John Aldridge, H. Alden, Ohio Quarries Co., Buffalo; Ben Brick; James Crang; Frank Saunders; James Hewitt; John Maloney; Ed. Gearing; Thomas Cannon; Mr. Henry, of Henry & Sons; Mr. Taylor, of Taylor & Nesbitt; Mr. Petrie; J. Flower; E. J. Currie; Mr. Chatterson, of the B. O. T. Mfg. Co.; Mr. Ryan, of Simpson Planing Mills, Limited; Mr. Hannah, and Mr. Nelson, of Hannah & Nelson; Mr. Brown, of Brown & Cooper; Mr. Hickley, of Hickley & Brennan; A. W. Stewart, Cleveland Consolidated Stone Co.; H. Terrill, Cleveland Stone Co.; R. J. Orr, of Orr Bros.; Mr. Corkin; J. Robinson, of Nicholson & Curtis, and Eric A. Forson, associate editor, The Canadian Builder and Carpenter.

### Supplying Humidity with Furnace Heating

In the June issue of The Canadian Builder and Carpenter, was an instructive article on "Supplying Humidity with Furnace Heating," by Mr. Stewart, of the James Stewart Mfg. Co., Woodstock. A person much interested in the article wrote Mr. Stewart as follows:

"We note in the third to last paragraph of your article on page 32 of the June issue of The Canadian Builder you state 'the colder the weather the greater the evaporation, but humidity point almost constant,' while in the first part of the article you state that the lower the temperature the less of humidity, or at least you infer that. Probably this refers to two differ-



A group of the players and the referee. They are: George Gander, R. J. Orr, Walter Davidson, and John Westlauffer.

ent conditions. The writer would appreciate having you explain this to him.

yours truly,"

In the following reply Mr. Stewart gives a further explanation of humidity:—

"Dear Sir:

"I am pleased to note your interest in the subject of humidity as evidenced by your inquiry.

"In reply would say that the two statements in



question are not contradictory, as they refer to two different conditions, viz., out doors and indoors.

"The atmosphere's water carrying capacity is determined entirely by the temperature. For instance, a cubic foot of air at 30 degrees F. can absorb or retain 2 grains of moisture and is saturation point (100 per cent., relative humidity) at that temperature, while air of 70 degrees temperature would require eight grains to give saturation and the 100 per cent. relative humidity.

"It will therefore be recognized that, to maintain anything approaching normal humidity indoors, the cold air taken in must, as it is raised in temperature, have water added to it by artificial means. When the temperature outdoors rises, natural laws prevail, the seas, rivers, lakes, soil, vegetation and rain are furnishing the means of allowing the atmosphere to adjust itself to the normal.

"In house heating, the colder the intaken fresh air is, the greater the evaporation of water required of the furnace in order to maintain reasonable humidities, and when I say 'humidity point almost constant,' I am referring to results as obtained in our offices in our winter heating, using a circle waterpan furnace. No matter what outdoor conditions were, we were able to maintain humidities; the colder the weather the stronger the furnace was operated, causing more rapid evaporation of water by the circle pan, in fact, the working is automatic.

"In illustration we might quote the record of two days of extremes in temperature. Outside temperature 30 above, water evaporation 8 gallons, humidity 52 per cent. indoors. Outside temperature 16 below, water evaporation 13 gallons, humidity 50 per cent. On the colder day, even by evaporating five gallons more water we hardly reached the humidity as attained on the milder day."

## Design for a Homelike Cottage

*By Wm. Morrill, Winnipeg*

The accompanying drawing shows a very homelike bungalow or cottage. The length of building is 39 ft. including summer kitchen; width 19 ft. 6 ins. The front room is 9 ft. x 11 ft. 6 ins., with a cosy ingle nook with a coal fire. Seats are constructed at both sides.

The hall has an open fireplace with small mantle, and also a book case fixed in corner, size 5 ft. 6 ins. x 11 ft. 6 ins.

The bathroom has the usual equipment with a medicine chest situated at the top end of bath, partly in wall. The size is 7 ft. 6 ins. x 7 ft.

The kitchen has pantry and ice cupboard which slides into cellar or chamber made for it, and may be made to lift up by fixing spring sash pulley or weights. A plate cupboard has been built on top of ice cupboard with glass door. Under the kitchen chimney bracket is a set of shelves for plates, books, etc. The kitchen is 9 ft. 6 ins. x 10 ft. 3 ins.

There are two bedrooms, one 7 ft. 6 ins. x 8 ft. 9 ins., and another 7 ft. 6 ins. x 7 ft.—each with clothes cupboards.

The summer kitchen has a coal place under part of the floor. A window contains a milk cupboard or delivery box, size 7 ft. x 10 ft. 6 ins. A cellar could be put under kitchen leading from summer kitchen. The verandah at front is 4 ft. x 19 ft. 6 ins. long, screened in from door to end.

## Building Returns for Six Months

In the accompanying table, reproduced from "Financial Post," over half of the cities whose returns are included, showed a decrease in June, the majority being



A home-like bungalow or cottage designed by Wm. Morrill.

cities west of the Great Lakes. Detailed according to provinces, large decreases are shown in the Prairie Provinces and British Columbia, while Ontario, as a whole, decreased 9 per cent. The Quebec cities, Montreal and suburbs, alone exceeded their 1912 figures.

Buildings Permits Granted in June and Six Months

Maritime	June, 1913.	June, 1912.	6 mos., '13.	6 mos., '12.
Halifax	1,184,195	1,184,195	1,184,195	1,184,195
Sydney	186,793	186,793	186,793	186,793
<b>Quebec</b>	<b>\$ 267,036</b>	<b>\$ 282,200</b>	<b>\$ 1,676,288</b>	<b>\$ 762,441</b>
Montreal	2,278,424	1,718,505	9,942,285	8,065,993
Westmount	119,940	251,050	858,620	1,032,281
<b>Ontario</b>	<b>\$ 2,805,114</b>	<b>\$ 2,348,455</b>	<b>\$11,954,028</b>	<b>\$10,138,602</b>
Brantford	103,773	101,230	604,906	657,230
Fort William	431,735	232,070	2,636,835	1,743,410
Guelph	113,385	38,150	319,284	211,786
Hamilton	550,000	670,600	3,391,450	3,145,600
Kingston	49,960	75,335	354,295	224,059
North Bay	114,015	90,000	835,730	339,635
Ottawa	578,650	417,750	2,640,505	2,120,000
Peterboro	94,806	67,095	305,165	157,558
Port Arthur	511,395	174,884	1,475,803	702,474
Preston	49,700	18,625	224,380	181,850
St. Catharines	55,720	128,950	236,730	335,640
Sudbury	100,225	116,000	433,975	357,225
Toronto	2,036,923	3,292,766	13,734,419	13,195,271
Welland	34,976	19,313	229,136	124,185
Windsor	18,111	114,125	713,979	453,757
<b>Manitoba</b>	<b>\$ 5,272,697</b>	<b>\$ 5,854,051</b>	<b>\$28,785,866</b>	<b>\$24,838,525</b>
Winnipeg	1,843,350	3,210,370	9,531,400	11,487,150
<b>Saskatchewan</b>	<b>\$ 2,026,119</b>	<b>\$ 3,365,220</b>	<b>\$ 9,882,119</b>	<b>\$11,841,602</b>
Moose Jaw	551,610	531,555	1,667,895	2,194,525
North Battleford	152,600	335,285	736,095	565,130
Prince Albert	304,600	278,900	1,055,690	1,043,825
Regina	810,995	1,048,830	2,726,130	2,549,770
Saskatoon	249,210	1,601,000	1,859,395	4,634,685
Swift Current	65,263	116,226	768,295	434,821
Weyburn	8,800	92,275	113,100	246,100
Yorkton	23,600	113,116	183,007	328,006
<b>Alberta</b>	<b>\$ 2,366,678</b>	<b>\$ 4,117,187</b>	<b>\$ 9,109,607</b>	<b>\$11,996,922</b>
Calgary	1,428,650	2,567,235	6,345,405	7,538,862
Lethbridge	24,112	103,593	402,555	719,345
Macleod	7,600	31,350	47,000	106,000
Medicine Hat	248,575	212,445	1,366,580	1,000,614
Red Deer	12,500	83,040	70,300	210,740
<b>British Columbia</b>	<b>\$ 3,220,059</b>	<b>\$ 5,208,153</b>	<b>\$12,716,325</b>	<b>\$18,116,631</b>
Nelson	90	22,600	32,750	198,015
New Westminster	139,375	96,850	719,135	785,578
Oak Bay	67,645	211,700	628,501	1,367,167
South Vancouver	908,881	1,219,780	7,118,253	8,132,720
Vancouver	565,985	617,860	2,757,765	4,647,600
<b>Summary.</b>	<b>\$ 1,585,089</b>	<b>\$ 2,275,820</b>	<b>\$12,203,730</b>	<b>\$15,698,915</b>
<b>Total (50 Cities)</b>	<b>\$17,342,790</b>	<b>\$23,151,086</b>	<b>\$86,327,603</b>	<b>\$93,497,638</b>

### The Half Year's Record

For the half year a decrease of 7 per cent. is shown when the cities are grouped as against an aggregate increase of 32 per cent. made during the first half of 1912 over the preceding year. The total decrease in the Western provinces is \$13,700,000, while the Eastern provinces have advanced \$6,600,000, making an aggregate decrease of \$7,100,000, or 7 per cent.

### The Maritime Revival

The Maritime Province cities show an increase of 120 per cent., St. John's increase to date being 283 per cent. and Halifax's 53 per cent., while Sydney is

26 per cent. below its 1912 record. The showing is a good one as far as Halifax and St. John are concerned, and a concrete indication of the so-called "Maritime Revival."

### Colors to Use With Various Woods

A correspondent of the Decorative Furniture sends for publication a table of colorings to be used in connection with various woods. This schedule is based upon his practical knowledge, gained through long years of experience, and, while not guaranteed to be absolutely infallible, it is nevertheless an interesting condensation of an important feature in interior decoration, and will, no doubt, assist some of our readers in "arriving at the right thing."

Woods	Wall Decoration.
Mahogany,	use Green or White.
Light Oak,	use Yellows.
Antique Oak,	use Robin's Egg Blue.
Flemish Oak,	use Yellow, Red or Green.
Walnut,	use Yellow.
Red Cedar,	use Dark Blues and Light Greens.
Georgia Pine,	use Buffs.
Ebony,	use Yellows.
White Enamel,	use Maroons, Reds, Greens, Pinks, Whites or Lavenders.
Bird's Eye Maple,	use Salmon, Lavender or Robin's Egg Blue.

If any other of our readers have tables of treatments which they have found satisfactory in their work, or if they disagree with the above schedule in any way, we would be pleased to hear from them, for it's always a good plan to pass a good scheme along.

### The Face Brick Company, Moose Jaw, Sask.

The plant of the Face Brick Company, within easy reach of the city of Moose Jaw, Sask., is now in active operation, under the management of F. H. Smith, president; Charles Boyd, secretary-treasurer, and George Marlatt, manager.

The location of the plant is an ideal one. There is an unlimited supply of sand lying about eighteen inches beneath the surface. It is pure, and free from any loam, clay, stone or any other material which would tend to hinder the action of the cement.

The method adopted in manufacturing sand lime bricks is simple, and varies but little from that used to make clay bricks. The sand is mixed with cement at a ratio of 5 to 1, and softened. It is again mixed into a satisfactory consistency, and placed in machines which have a capacity of ten bricks at a time. A coat of cement coloring is added to the outside edge, and the bricks, while in the soft state, are impressed with any desired pattern. After being on the drying table for twenty-four hours, they are stacked to undergo the seasoning process, which requires two days. The bricks are then ready for the bricklayer.

The machines used by the Face Brick Company can be adjusted to regulate the size of the bricks from 2 3/4 inches to 4 inches in height, and from 4 to 12 inches in length. They will also make what is known as a skew brick, used in the construction of artistic porches and windows, where obtuse or acute angles are featured.

As yet only three machines have been installed, but this number will be increased to ten before long. A night and day shift will be run, and the capacity of the plant will be approximately 20,000 bricks per day.

The Face Brick Company will also manufacture concrete window sills and lintels, mantel shelves and hearthstones for fireplaces.



## When Houses are in Good Taste

By Charles E. White, Jr., in *Keith's Magazine*

*The effect of paint, blinds, shutters, shingles, cornices, etc., on the appearance of a house.*

WHY is it some houses give us a thrill of joy when we look at them, others producing a feeling of depression; real annoyance oftentimes, hard to describe, but no less surely felt? Why does one house seem to have an air of refinement about it, while another thrusts itself boldly forward and demands our attention so insistently that it seems to stand out rudely from its neighbors?

We may notice the same thing in houses that we observe in persons. One's personality, pleasing or displeasing, is no stronger than the personality of a house, which is bound to affect the observer in one way or another—giving him a feeling of pleasure or displeasure, as the case may be.

When an unattractive house is new, fresh from the hands of the painters, it may look inviting to the layman who has not been trained to understand the difference between a good or a bad design, but once let the new look wear off and the design comes out in its true colors, understood by almost everyone. A dull, uninteresting design proclaims itself as such to everybody. Though not always aware just what is the matter, almost every passer-by can tell that something is wrong with the house. There is something lacking—or something has been applied to the design which produces a displeasing result, and the beholder makes the involuntary comment, "I wouldn't want a house like that."

The difference between a well designed house and a house poorly designed is sometimes very trifling, yet the variation in result is remarkable. Taking two houses with the same floor plan, two designers might build them side by side, and they would be so totally different in appearance one would not suspect them as having the same arrangement of rooms. One designer, by merely locating doors and windows in an artistic way, might get a result successful from every standpoint, while the other, less skilful, might commit so many blunders in the arrangement and proportions of his doors and windows as to spoil the exterior appearance of his house.

Windows have tremendous importance in the design. The way they are grouped—their width and height, and the amount of solid walls surrounding them all contribute to the result. Prospective house owners will do well to examine windows in the attractive houses in their neighborhood with the idea of discovering just what it is that proves so charming in the design.

### The Window Arrangement.

As a general proposition, single broad windows look better than single narrow windows. The latter look well in groups, but when isolated a narrow window usually present an unattractive appearance. For houses of moderate size single windows about 3 feet wide and 4 feet 6 inches high usually look pleasing. Frequently (in a living room) the width is increased to 3 feet 6 inches or 4 feet. Many small houses have windows 5 feet or 5 feet 6 inches high, and they are apt to be out of proportion on a small house, looking less attractive than shorter windows.

The best looking windows do not have one large

sheet of glass in the upper light, with a large sheet in the lower. The upper light should be cut up into small panes, especially in small houses. The divisions between panes can be of wood, or lead, or metal bars can be used.

Blinds have a more decorative value on a house than many think. Old-fashioned houses, so often painted spotless white, invariably have bronze green blinds. Though originally intended for strict utility, blinds or shutters have come to be recognized in modern work as pleasing in appearance, and many architects use them to add color to the design. Houses painted white are quite ghastly in appearance unless there are green blinds at the windows to give a pleasing contrast with the white paint. Green trellises applied here and there also do much to make a design more interesting.

### Effect of Front Entrance.

At no spot in the house is good design so necessary as at the front entrance. The most noticeable place in the house, an entrance door produces immediately an effect, good or bad, according to the skill of the designer. As a general thing, one will be safe in having a simple doorway with a little porch, reached by as few steps as possible. Often, merely a simple hood, supported on brackets, extends over the entrance to shield the doorway from wind and weather. Well designed, such an entrance is very engaging. More and more architects are placing the verandah away from the front of the house, and the result is very successful. With a porch entirely across the front, a house is depreciated in appearance, and windows are darkened. A porch placed at one end usually looks well, and makes possible a good view from front windows.

Frame houses are covered with a variety of different materials. One can choose almost any kind of finish with the assurance that the result will be pleasing when the materials are used understandingly. Cement plaster on wood laths or metal lathing makes an excellent exterior coating for any house. As cement lacks color, it is always wise to paint window frames and cornices some pretty shade of green or brown—some color that contrasts well with the grey of the plaster to "warm it up." That is one reason why "English-timber-work" houses are so attractive.

Wood siding, wide or narrow, is attractive when stained or painted. If siding is used, stained, try putting the boards on with the rough side out, as rough surfaces take stain much better than smooth surfaces. Siding is most attractive, usually, when it is mitred at the corners, no corner boards being used.

### Shingles for Exterior Covering.

Shingles are excellent for exterior covering. They take stain beautifully, and are as durable as any other wooden covering. Shingles look best mitred at the corners (using no corner boards). A sort of rustic appearance is given to the building when shingles are used in this way.

### Design of Cornice.

Not the least important part of the house design is the cornice, for a well-designed cornice will do

much toward promoting the ultimate effectiveness of the building. On a Colonial house the cornices should be daintily moulded, but in many other styles plain boards are practical and attractive for cornices. Often, a simple board along the edge of the roof is all that is necessary, and a hanging gutter of galvanized iron gives all the finish required. In this case the gutter should be applied practically level, for a hanging gutter with a sharp slope is very distressing, making the edge of the roof look as though it was out of level. There is really no reason why a gutter should have so steep a slope. Water will run through a gutter readily when it is almost level.

Whether overhanging eaves are used or eaves without overhang, there need be no difference in the resultant success of the design. Just now, in the West, most houses are built with an overhang of three feet or more, and a cornice treated in this way is very good looking. On the other hand, eastern architects continue to use roofs with very slight overhangs and the result is quite pleasing. When eaves overhang one must be careful to build them securely or they will sag. A roof overhanging 3 feet or more should have plenty of projecting timbers to support the weight of the roof.

On plaster houses it is well to continue the plaster surface up under the eaves as well, for plaster is a durable material used in this way, and makes a good appearance. On houses covered with siding or shingles sheathing is usually applied under the eaves.

Color makes a great difference in the appearance of any house, so after the house is built the exterior color should be chosen carefully, to avoid spoiling the effect. Badly chosen colors have ruined many a house which would, otherwise, have been very attractive.

White houses with green blinds are almost always

pleasing. Houses with an exterior covering of shingles or rough siding can be stained golden brown or olive green with good effect. Houses treated with English-timber-work should have the wood trimmings stained or painted nut brown or bronze green.

Red is a difficult color to use in paint. Some of the soft shades of Indian red look well on a roof, but brilliant shades of red are not attractive. As a general thing colors that are soft (not strong or violent) are more pleasing than any others.

Greens and browns harmonize perfectly when the right shades are chosen. Brown side walls with a green roof, or vice versa, are good combinations. Yellow should be used sparingly.

Good taste houses are in evidence everywhere, as well as bad taste houses. The wise house owner will do well to examine all the new houses he can reach, studying carefully their good points that he may understand just wherein they are successful. Then he can apply the information to his own problem. Good taste houses are always in good taste. They never go out of style, nor do they depreciate in looks as the years go on. Old houses that are most admired to-day were good taste houses from the beginning. That is why they remain so pleasing to-day in spite of changing styles and fancies.

### Architects of Muskoka Cottage Hospital

On page 33 of the July issue of The Canadian Builder and Carpenter appeared the front and side elevations and floor plans of the Fulford Cottage at the Muskoka Sanitarium, Gravenhurst, Ontario. The architects of this structure were A. R. Denison & Stephenson, 20 King Street East, Toronto, to whom this paper is indebted for the loan of the plans.



Caen stone cement mantel, manufactured by Balmer & Blakely, Toronto. This is an excellent imitation of the genuine Caen stone, and is much used for decorative work.



# Use of Electric Motors in Building Operations

By  
Gordon C. Keith

*Cutting and working stone  
by air-operated tools at  
Knox College, Toronto.*

WITH the continuous recent development of water powers in Canada, there are many new uses to which electricity has been put. Its use in the building field has resulted in a considerable variety of work being accomplished either more conveniently or more economically than was previously possible.

Probably the most common use is to operate electrically driven reamers in the fabrication of steel work on large buildings or for the motor driven air compressors where air operated chippers, drills and reamers are used in the erection of steel structures. When the writer visited Edmonton recently, there was a motor-driven air compressor and reservoir being used in the erection of an opera house on Jasper Avenue, and it came in for a great deal of public attention. This outfit was illustrated in the Canadian Builder two or three months ago.

One of the economies of such an outfit is that no engineer is required for the operation of the motor or air compressor. Also no attention has to be given to the matter of water supply or having sufficient coal on hand.

When an outfit is taken to a job all that is necessary to do in the case of a motor is to have a meter and a switch installed by the electric company. The motor is then operated only when air pressure is required. In the case of the electrically operated reamer, it is necessary to have plugs installed near where work is to be done.

The use of electricity in building operation so far has been on large buildings, but with a great deal of steel being now used in smaller buildings, it may be found profitable for use on these smaller structures instead of the hand reamers, which are very slow when constructing steel work.

## Using Electricity In Construction of Knox College.

A notable example of the use of electricity in building construction is in connection with the preparation of the stone work for the new Knox College, Toronto, where not only is there a motor-driven air-compressor, but also a motor-driven stone saw and a motor-driven jib crane.

The stone work is being done by Oakley & Co., builders and contractors, Booth Avenue, Toronto. For handling the stone they have installed an electric jib crane. The arm covers a large radius. The arm makes a complete revolution in thirty seconds. The stone may be carried to any point within the radius of the arm, since a stone may travel by the "block and tackle" along the arm in addition to the circular motion of the arm.

A view of this derrick is shown in Fig. 2, while details are illustrated in Fig. 3. This machine is made completely of steel. The electric hoist is mounted on a mast, and this hoist raises the load, rocks the trolley and swings the crane around, all movements being controlled from the operator's platform. The derrick has

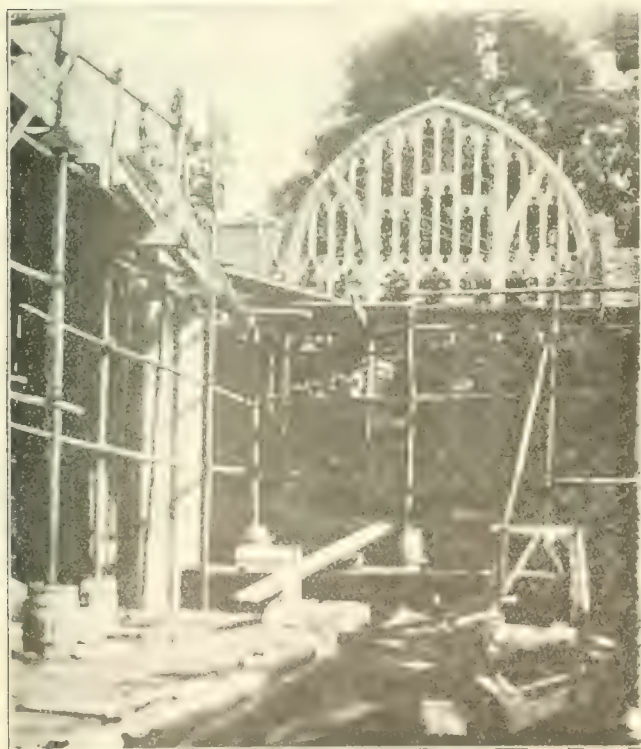


Fig. 1—A large air compressor at Knox College. The parts were cut in the stone by air-operated tools. The air compressor being operated by a motor.



Fig. 2—Electric derrick, built by Pearson Mfg. Co., Niagara Falls, Ont.

a capacity of two tons at the end of the boom, and three tons half way out on the boom.

The design of the hoist is rather novel in that the Pollard Manufacturing Co., Niagara Falls, Ontario, the builders, secured a low weight machine by eliminating heavy spur gears, and using in place of them a worm and worm wheel running in grease. The electric

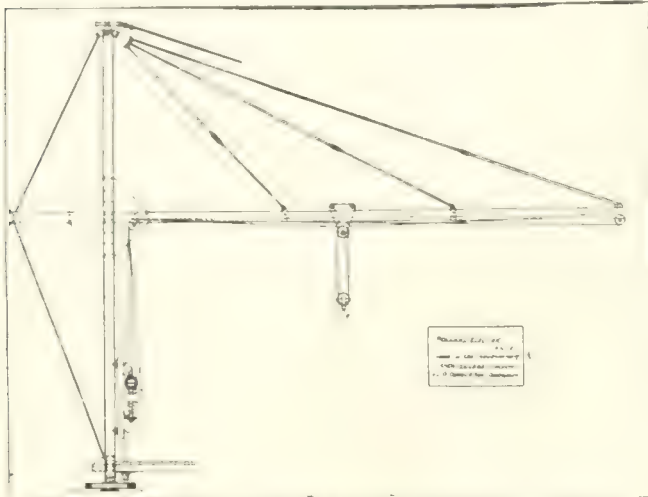


Fig. 3. Poland electric crane used for handling stone in the construction of Knox College, Toronto.

hoist part is covered in, in the picture, Fig. 2. The whole machine weighs four tons. Four "dead men" hold down the guy ropes.

#### Economies of Motor-driven Stone Saw and Double-track Arrangement.

The stone is Indiana limestone, imported from Bedford, Ind. The blocks of stone are cut to size on a steel saw with carborundum teeth, shown in Fig. 4. The saw is motor-driven, the motor being shown mounted on the saw carriage. Two narrow gauge tracks lead under the cross arm of the saw so that the saw may be kept in continuous operation. When one stone is being cut to size, another is being mounted on the second truck. The saw cuts to one-sixty-fourth of an inch, giving a smooth "rubbing bed finish."

#### Construction of Saw With Carborundum Teeth.

This saw consists of a circular steel blade with teeth set in its periphery. The blade is cut with apertures in which the teeth fit. The latter consist of steel forms covered with a carborundum composition. These steel forms are milled to fit accurately into the apertures of the blade, the steel portion being flush with the periphery of the blade and the carborundum extending beyond. When the carborundum has worn down to the periphery of the blade, the worn-out teeth are returned to the makers to be recovered.

The steel forms are held in position by means of steel wedges and do not become loose. It is a very simple matter to remove and replace the teeth, this being done without removing the saw blade from the machine. A few taps of a hammer loosen the wedges and the teeth can then be easily taken out. In fact, the whole operation of removing and replacing a set of teeth requires but a few minutes. The teeth last eight days in continuous operation in limestone. The saw used on this job was made by the Royden Marble Machinery Co., 17 Madison Avenue, New York.

#### Air-operated Tools for Working Stone.

The tools for shaping the stones are operated by

air, the motor-driven air-compressor and air reservoir are at the left of the saw shown in Fig. 4. The air pressure is 97 pounds. A pipe line is conducted from the reservoir along the small shed shown in the rear of Fig. 2. Here about twelve men may work at once, if necessary. The stonework for the windows is completed by air tools. Fig. 1 shows the chancel in the chapel of the college, the window having an opening 20 feet in width. This shows the effect of the assembled stones after being wrought into their various shapes and sizes with the air tools.

### Completion of Canada Brick Co.'s Sand Lime Brick Plant

The plants of the Canada Brick Company at St. Lambert and Mile End are now completed, and the company is in a position to operate them at full capacity. For the past six weeks the average daily output has been 30,000 brick, compared with 20,000 for the four and a half months preceding, and the company is now in a position to turn out over 40,000 brick a day should that be immediately required.

The Canada Brick Company was organized a little over a year ago by Montreal financiers. Its capital is \$1,000,000. The board of directors is made up of the following gentlemen: C. H. Cahan, K.C.; H. A. Lovett, K.C.; F. Loomis, F. G. Gyles, and A. G. Cameron.

The company owns approximately 130,000 square feet of land fronting on the Grand Trunk Railway at St. Lambert, and 40,000 at Mile End, fronting on the Canadian Pacific Railway.

### Colored Mortar for Stucco and Plaster

Objection is raised by some plasterers against using pigments or mineral paints with mortar to produce a colored interior finish or for stucco. This can be done, and done successfully, if one knows the difficulties he should guard against, and uses a little care. The big thing to make sure about is that the colors will not

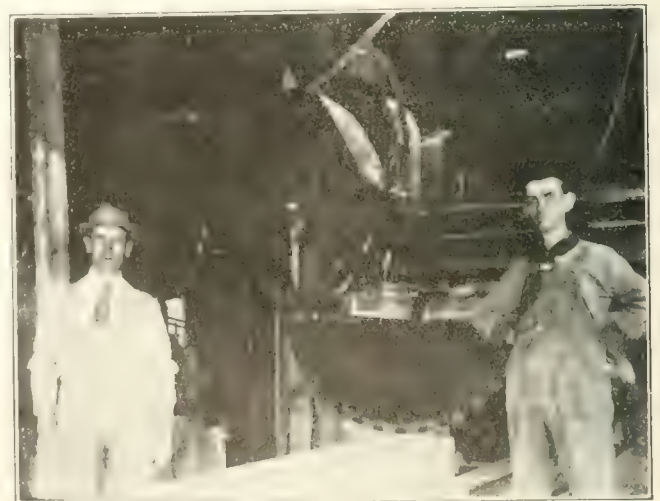


Fig. 4. Motor-driven stone saw, manufactured by the Royden Marble Machinery Co., New York. The air compressor outfit is at the left.

bleach in the presence of lime. Venetian red and yellow ochre have been found good for stucco work, but care must be exercised to see that the ingredients in the dry powder purchased will not bleach or fade when mixed with the mortar.

The practice of mixing pigments with mortar is old, and was done by the Italians thousands of years ago.



# The Canadian Builder and Carpenter

A Practical Monthly Paper Devoted to all Branches of the Building Trades. Published End of First Week.

THE COMMERCIAL PRESS, LIMITED

Office: 122 S. Michigan Ave., 12th Floor, Toronto.  
 Montreal Office: 101 Unity Building.

D. O. M. KINNON, President J. C. ARMER, Manager  
 GORDON C. KEITH, M.Sc., Editor.  
 LEON A. JOHNSON, Associate Editor.

## Representatives:

F. C. DOUGLAS WILKES	QUEBEC AND MARITIME PROVINCES
GEORGE G. CLAYTON	EASTERN ONTARIO
GEORGE H. HONSBARGER	WESTERN ONTARIO
JOHN A. HERRICK	TORONTO
GEORGE W. FLEMING	MONTREAL
E. J. MACINTYRE	Room 659, 122 S. Michigan Ave., CHICAGO.

Subscription Rate, \$1.00 per year in Canada and Great Britain

\$1.50 to the United States; \$2.00 to Foreign Countries.

Subscribers would do us a favor by notifying us if they do not receive the paper regularly, so that the matter may be rectified. In notifying us of change in address, please send old as well as new address.

Advertising rates on application.

Vol. 3

TORONTO, AUGUST, 1913

No. 8

## Editorial Comment

**Charges of Poor Work, Graft, etc. Should Be Investigated.** It is very easy to make charges, but it is usually harder to prove them. When charges are made, it is only fair that they should be investigated.

In Brantford, for instance, it is charged that there are to be found in that city, houses dangerous to workmen because of insecure foundation, houses with walls six inches out of plumb, and houses with 9 inch walls instead of 14, as called for by by-law.

Another cause that should be investigated is the charge of graft made against the City Architect's Department, Toronto. In fairness to the retiring architect, Mr. McCallum, this should be done at once. Mr. McCallum has just undergone the strenuous task of revising the city's building by-laws, attended with a serious breakdown of his health. He should, therefore, not be allowed to leave the civic service with a stain on his name after the faithful service he has given, if there is no foundation for the charges which have been made.

\* \* \* \*

**Some Opinions on "Crookedness in Business."**

The Toronto Globe has a good deal to say on poor work. Under the heading "Crookedness in Business," there was an editorial reference to the matters referred to above, and we reproduce it in order to enlist our readers in the elimination of any chance of a charge being laid against Canadian builders. The editorial is as follows:

We hear a good deal of the rottenness of "big business" on this continent, and evidence is presented from time to time which indicates that the fear of prison is the only restraining influence recognized by many leaders in finance and industry. But is "big business" unique in its crookedness? By no means. The working of the public by piratical financial methods is conspicuous, and therefore much talked of in the press, but it is doubtful whether in the aggregate the plunder is as great as that of the little crooks who imitate the methods of the get-rich-quick financiers.

Two new stories in point of this are the "business" of business morality among us. At the meeting of the Brantford Trades Council a bricklayer stated that there were houses being built in Brantford on which it was positively dangerous for the bricklayers to work because of defective foundations. There were new brick houses of which one with walls six inches out of plumb. A carpenter delegate also stated that much "jerry" building was done on houses where enough money was being spent by the owner to secure honest work and a good profit for the builder.

In Toronto, where Judge Winchester is conducting an inquiry into alleged crookedness in the execution of Board of Education contracts, representatives of the Painters' Union told the Trades Council of cases of scamping work that are almost incredible. In one instance a single coat of paint was made to do duty where the specifications called for four. This is of a piece with the use of hemlock instead of white pine, iron window sash weights instead of lead, and similar "money savers," the use of which has been proved in evidence.

The conditions of the building trade lend themselves specially to petty fraud, but it is to be feared that the canker of business immorality is not confined to one spot in the body politic. At the present moment a well-known firm of civic contractors is under the harrow because of gross irregularities in its book-keeping, which were apparently intended to secure from the city overpayments on a large scale. An insurance company in deep water—according to the statement of a Government inspector—can trace its misfortunes to highly speculative investments that ought never to have been made.

And so all over the fabric of business life the stain of dishonesty may be traced. It is a time of easy morals. We do unto others as we are convinced they would do unto us if they had a chance. Is there a way back to the high business plane of our grandfathers, when an honest day's work for an honest day's wage was the rule, and when the haste to be rich, so characteristic of our own times, had not developed? Only in one way can we hope to put an end to crookedness in business, and that is by making it unprofitable from both the business and social points of view. The social ostracism of the "get-rich-quick" millionaire and the jail door wide open for the jerry builder would help to convince them that honesty is the best policy, even if not worth pursuing for its own sake. Now that Canadians have a little spare time how would it do to spend some of it, as our neighbors are doing, hunting down the business crook?

\* \* \* \*

**Cannot a Means of Escaping Summer's Scorching Heat Be Evolved?**

Year after year we provide for making our houses comfortable in winter, but in those same years we make no provision for making them equally comfortable in summer. A recent issue of the Saturday Evening Post asks the question:—

"Are they never going to give us cool, pleasant homes, where we may escape the scorching heat of summer days and the ragging weariness of sweltering nights? Cannot the scientists and the engineers and the builders evolve some cooling system that will not be too expensive for good apartment houses and homes for anybody, for instance, who can now afford the half-relief of electric fans?"

This has already been tried out, but as yet it is in the luxury class. The probabilities are, however, that house-cooling will follow the history of general comforts, and come down to a reasonable cost, which is now estimated at about two to three times as much as to heat a house in winter. Automatic refrigerators run with electricity taken from the electric light socket are now in use. Electricity is used for the manufacture of ice, and in packing houses is used for cooling.

A notable example of this is given by the Saturday Evening Post. In St. Louis is a central cold station with six miles of supply mains to supply stores and packing houses. Compressed ammonia is sent through these mains to refrigerating rooms of customers. When it reaches the refrigerators the ammonia is allowed to expand, taking the heat from the air in so doing and producing the cold. A central station in Louisville supplies refrigeration to its immediate neighborhood,

and another in Atlanta pumps cold brine to refrigerators within a quarter of a mile of its location.

Heat is successfully distributed to hotels, stores and houses. Could not a central cold station be developed to make homes comfortably cool in warm weather? When not in use for this purpose, the plant could be used for the manufacture of ice, and thus prove to be a money-making scheme the whole year round.

#### The Trouble with Quebec's Moving Day, May 1st.

• • • • •  
In the July issue of The Canadian Builder we pointed out how one of Quebec's laws made people restless, in fact, made it the "style" to move with great resultant inconveniences to telephone, electric light companies, property owners and tenants. It has made the population of Montreal so restless that public service corporations cannot restore normal conditions for months, and such a situation can be and ought to be eliminated.

This year, in Montreal alone, over 31,000 families changed their habitation at an estimated cost of half a million dollars. The telephone companies received orders to move over 5,000 telephones, and the electric light company had to change some 30,000 meters. Business in Montreal on May 1st was practically at a standstill. Central station men say that in no other city on the continent is such strenuous service required of an electric light company as is required of that in Montreal on May 1st.

### The Value of Visiting an Exhibition

In a couple of weeks the big annual event of the year—the Canadian National Exhibition—will be in full swing. While many people take this Exhibition for a big holiday, the wise business man—the one who is anxious to succeed and make money—combines business with pleasure and spends the better part of his time among the exhibits of goods that he uses in his work, and lets the midway alone.

Visiting an exhibition like that held in Toronto should not be considered as pleasure and the expense charged as holidaying. If a man visits the right exhibits and makes the most of his time at the fair, the knowledge he will gain will more than re-pay him for the time and money spent. He will get a line on materials he never knew existed, and he will see in operation new machines that will greatly enlighten his labor and save him money.

---

The capital stock of the Canada Lumber Co., Limited, Toronto, has been increased from \$100,000 to \$200,000.

When completed, New York's skyscraper, the mammoth fifty-five-storey Woolworth Building, will have cost approximately \$13,500,000, of which amount \$4,500,000 represents the cost of the land, \$1,000,000 of foundation excavation, and \$8,000,000 for construction.



Field, B.C., within a short distance of the spiral tunnels under Ogden Mountain on the C.P.R. A fine place to spend a holiday.



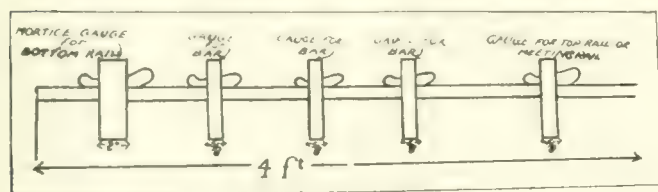
# Carpentry and Woodworking

## A Sash and Door Maker

By W. Berry

I have been making a great number of marginal light sash and invented the above device to gauge the morticing in rails and styles. I find it is very complete for the work. I have two sets of bar gauges, one set  $\frac{1}{8}$  and one  $\frac{3}{16}$ .

These gauges are  $\frac{1}{8}$  smaller than bars, as a  $\frac{5}{8}$  gauge



A sash and door maker.

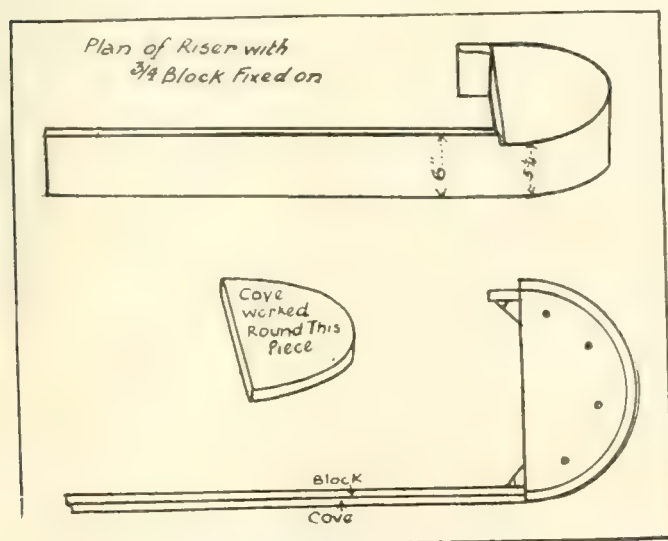
is for  $\frac{1}{4}$  bar, and  $\frac{3}{16}$  gauge for  $\frac{7}{8}$  bar. By being  $\frac{1}{8}$  under size it insures the bars a tight fit. In case where the style has a tenon end for meeting rail this gauge is used with stop against shoulder of tenon. In setting this tool I use a rule and dividers to insure correctness, and it is positive in its work, if care is taken in setting it.

## Making Stairs on the Job

By Albert E. Lacy, Saskatoon

I would like to offer a suggestion to those carpenters who have to make stairs on the job. In making a half-circle step for the bottom, a little difficulty is met with in getting the cove round under the tread.

Now I know the way a good many carpenters do it is this: The riser is veneered round the circular block, and the tread fixed on. Then the cove is worked and sawn out to fit around face of riser; but if the inside cut does not fit riser very good, it is difficult to



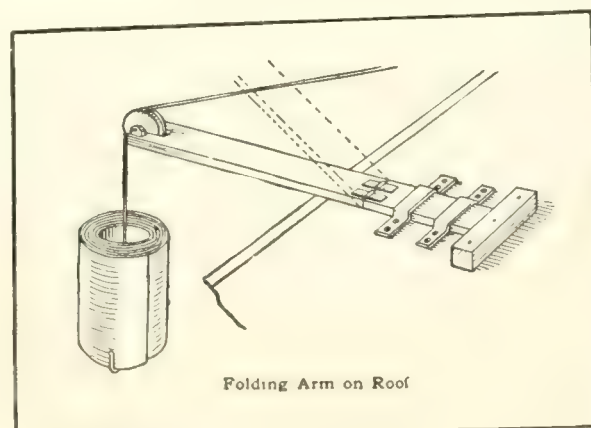
Details of half circle step for stairs.

plane or spokeshave it, and there is always the danger of breaking it in handling.

I can recommend the following "kink" as being easier, and making, to my mind, a better job. In making the circular block, make it just the thickness of cove, less than riser. For instance: If riser is 6 inches and cove three-quarters of an inch, make the block  $5\frac{1}{4}$  inches high, and the veneered part of the riser must also be reduced to  $5\frac{1}{4}$  inches. This can be done after veneering, if care is taken to keep block  $\frac{3}{4}$  of an inch down from top of riser. Then work cove on piece of  $\frac{3}{4}$ -inch board sawn to the right shape and fix it down on top of block, adjusting it to meet straight piece of cove, and to project over riser the right distance. This brings the block up level with top of riser, and the tread can now be fixed on in the ordinary way. Try this dodge on your next circular step, and I think you will always do it this way.

## Hand Hoist for Roof Workers

The sketch shows an important practical contrivance devised by a correspondent of Metal Worker to eliminate the friction produced when hoisting material up the side of a building, with the rope sliding along the edge of the roof. The dimensions given are: Roof



Folding Arm on Roof

piece, 3 feet long, and the projecting part 2 feet long,  $1\frac{1}{2}$  inches thick, and 6 inches wide. Two extra heavy strap hinges are used.

The projecting part is notched out at the end just enough to allow a heavy sheave wheel to pass in so that the axle can have sufficient support. The axle is held in place by straps bent to fit over it and screwed to the board by four wood screws.

Instead of nailing the arm to the roof on every occasion of use, thereby filling it full of nail holes, two band iron straps are permanently fastened to it by means of wood screws. These straps are bent to the shape of the board as shown, and nails are driven through the holes in the straps to the roof. As most of the stress is a backward push against the arm, it is well to nail a cleat to the back of the board.

The mode of operation is to lower the rope, and

if it is a roll of tin being hoisted, to hook the rope on the tin as shown. By steady hauling it will be found that the tin will be raised with surprisingly little exertion. This hauling is continued after the roll of tin strikes the wheel, for the main feature of having the arm hinged is to act like the boom of a derrick and raise the roll back on the roof.

### Curing Wood

Wood has contagious diseases! A stick of wood in a lumber yard may be sick and infect other timbers, which later may develop the disease when they are supporting great weights on a new building. Some of the diseases are so contagious that in a building they will jump several feet across masonry or brick to some stick of healthy wood. Cures were recently discussed by the American Society of Mechanical Engineers.

Most of the diseases are varieties of dry rot caused by a fungus, and most of the varieties of the dry-rot fungi cannot stand heat much over one hundred degrees; so the most likely cure is to close a building up tight, if any beams are infected, and heat it up to one hundred and twenty or one hundred and forty degrees. Even this is not always successful, for ends of beams are buried in the outer brick walls, and the heat may not reach them.

### A Wall Cabinet

By W. Berry

Here is a sketch of a wall cabinet I built in Dr. Howard's house, Winnipeg, a few years ago. I have never used the design since I have been in Ontario and will pass it on to the readers of *The Canadian Builder and Carpenter*.

The cabinet is built between dining-room and kitchen. The dining-room side is flush with wall, joining the corner of the room. The dining-room side is finished in oak and kitchen side in yellow pine. The drawers are operated from either side, and are centred with a spring catch inserted in a slide. The spring is made with a crown at one end and springs in an oval notch in drawer side.

The mirror door opening does not open through to kitchen, but is fitted with a felt-lined wall and felt-covered shelves. The shelves in double door space are also covered with felt. The kitchen side of this cabinet has straight or upright panels, but dining-room side

is fitted with raised, diagonal panels. There are stained glass top panels in double doors and bevelled plate mirror in side door.

The hardware is of best cast brass, polished, ball

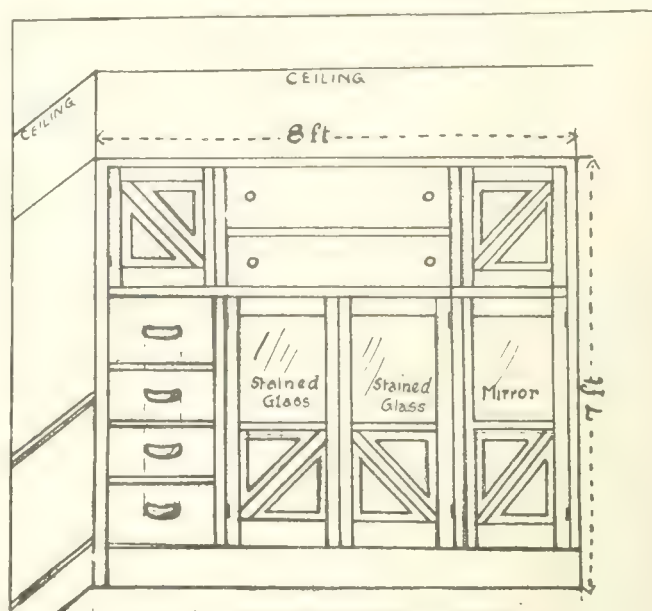
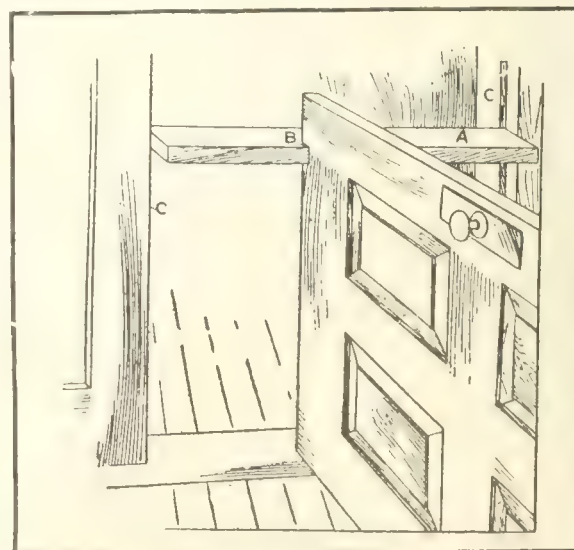


Fig. 2. A wall cabinet showing doors closed.

bearing hinges on three doors; common brass butt hinges and drop doors, and brass chain on same to hold doors when being used as a shelf. These doors are held shut with a friction catch and are opened by a slight draw of the handles. The kitchen side of the mirror door space is fitted with hooks for small articles.

### Holder for Jointing Doors

The sketch shows a good method of holding a door while planing the edges. When the time comes to fit the doors in a new house, begin with the widest door. Fit a board, A, in between the door casings, CC,



Holder for jointing door.

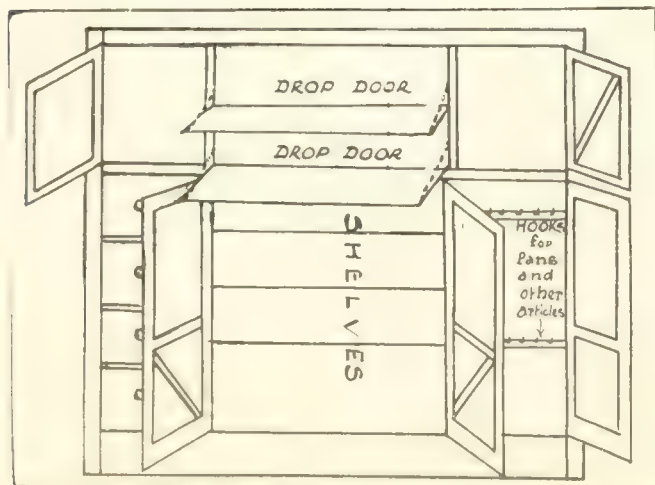


Fig. 1. A wall cabinet showing doors open.

and cut a notch, B, in the centre. The board, A, can be easily removed for testing the door in the opening. After the widest door is in place, fit the board to the next largest door opening, and so on until the smallest

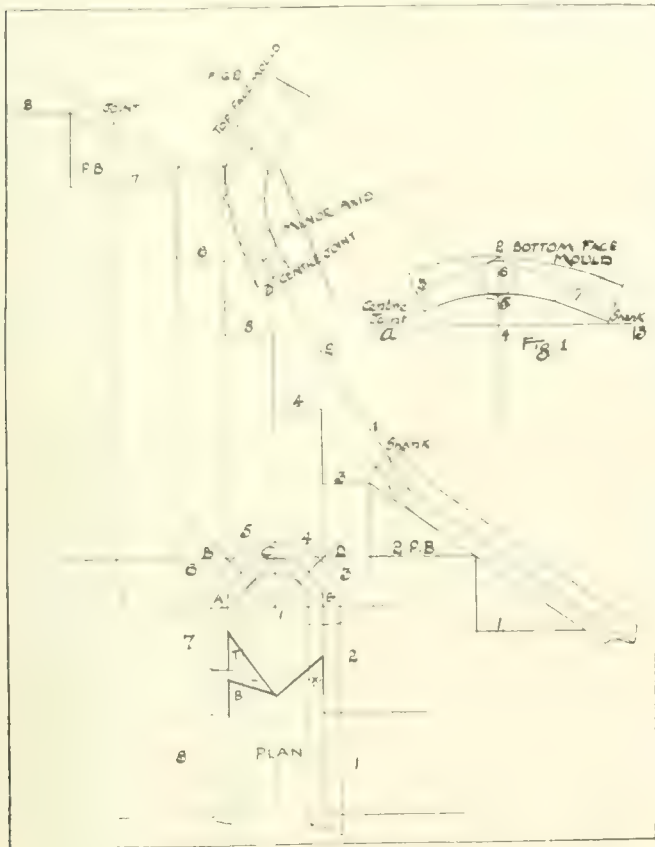


door is finished. This will make it possible to use only one board, A, as it can be cut down to fit between the casings of the smaller openings.—Popular Mechanics.

## Handrailing on the Block System\*

By John MacLachlan

The plan view in the accompanying illustration shows the rail over four winders. The position is not a good one, but as the stair was built, and a handrail was required, it was necessary to make the best of it. A rail was therefore made to the following drawings:



Drawing illustrating the descriptions given in John MacLachlan's third article.

Fig. 1—The plan was developed in the usual way, showing pitchboard at bottom and at top.

We will now deal with bottom face mould. Draw any line as A B, and square from it 4-2. Then take the diagonal 1D on plan, make the distance 4-2 equal; then take 1-2 in development, and from 2 mark at 1 and 3. In face mould, with same radius, from 4 bisect 1 and 3. Draw tangents as shown through 2, then take radius of centre line of rail only, and mark on 4-2. Draw half width of rail on each side as shown by circle. The width of face mould at joint 3 and at shank 1 is obtained from bevel on plan marked x, A B being major axis, and 4-5-6 minor axis. Draw as in problem 2.

Where rail is one pitch across two tangents, this method will apply as 1-2 and 2-3 to any description of rail with a circular plan, and is the simplest and most correct way of which I know.

\*Third article of a series on handrailing and stair work. Drawings by the author.

Notice—On all the moulds the line where the circle is drawn has no twist in any case, and the face mould is always the same width at that point as rail on plan.

Face mould (Fig. 2), is shown in Part 2, and need not be repeated.

### Directions To Square a Wreath.

Cut the stuff out to the pattern of face mould, leaving it a little full at that line where there is no twist. Then plane one side true. (We will deal with a bottom wreath. Of course the top is the reverse way). Then carefully mark on the stuff thus cut out your tangents on face mould. Then carefully make your joint. Then centre each joint by squaring the tangent down and gauging half its thickness. Hold the wreath piece to something like its true pitches, and mark a rough plumb line on each joint as near as you can guess. Now put your wreath piece down on the bench and the line you have just marked is the direction of your bevel, which apply through the centre of the stiff. These bevel lines give you fresh tangent on each side of your stuff. Then let the tangent on the mould coincide with these on the stuff.

Sliding your top mould upwards, and the bottom mould down, mark by the edges of the mould, and take your rail to a width, leaving it a little full. There mark line where there is no twist, across top and bottom side, which will be perfectly plumb on each edge when the wreath is in its position. Then on that line, in thickness of wreath piece, mark thickness of your finished rail. You have the three points to guide you in taking off bottom and top slabs, viz., square section on each end, and the thickness I have just shown. A practical eye and hand will do the rest.

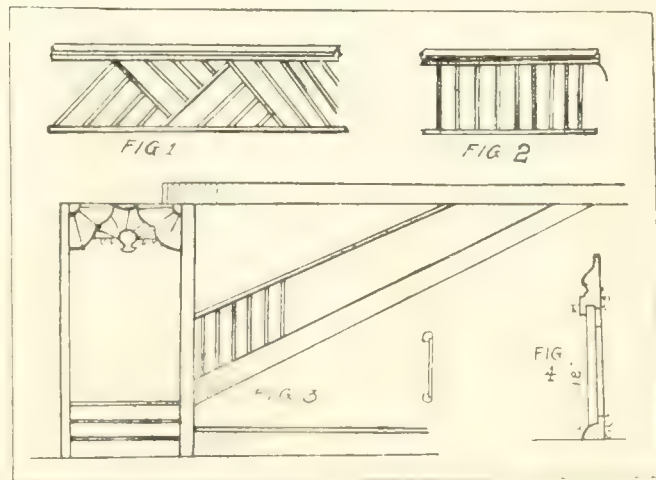
In the second article in the July number a solid block covering the quarter circle was shown. If this idea is applied to this handrail, it will give same results.

## A Few Designs of Finish and Trim

By W. Berry

I am doing a job in a well-finished house, and have made several designs of trim and finish which seem to be of an odd nature, but very attractive.

Fig. 1 shows the base of the dining-room. This is 24 inches high, and is of Georgia pine. The base is



Details of dining room and hall finish.

same height as the window stools, therefore no aprons are used under the stools. Mouldings of this style also are used.

The hall is finished with a Georgia pine base, as shown in Fig. 2. It is 16 inches high, with a 3-inch cape mould, and 1½-inch foot mould. Two-inch pine

is used  $\frac{3}{8}$ -inch thick. Fig. 4 shows an end view of the baseboard. Fig. 3 is a Georgia pine stair with base built of 2-inch Georgia pine,  $\frac{3}{8}$ -inch thick. Stair string is covered with same material, with  $1\frac{1}{4}$ -inch round, rabbeted, covering ends of  $\frac{3}{8}$ -inch material and covering the lower edge of the stairway base. At the left of sketch the framework is built up to the ceiling. The hall and stair are both finished with a similar trim.

### Annual Meeting of B.C. Society of Architects

The second annual meeting of the British Columbia Society of Architects was held in Vancouver during the week of July 5. Mr. Hoult Morton, Victoria, president of the society, occupied the chair, and the guests were welcomed by W. T. Whiteway, president of the Vancouver branch.

Reports of the various committees showed the affairs of the organization to be in satisfactory condition. Progress in connection with the steps the society is taking towards securing the passage of a Registration Act which will put the B. C. architects on the same basis as those of the same profession in the other provinces, was reported, and it was conceded that the efforts put forth will be successful.

Officers were elected as follows: President, Hoult Morton, Victoria; vice-president, J. L. Putnam, Vancouver; secretary, N. E. Read, Victoria; treasurer, P. L. James, Victoria; executive council, Messrs. Horel,

Dodd, Hope, Thompson, Birkenhead, of Vancouver, and Messrs. Cullen, Wilson, Jameson, R. Wilson and Keith, of Victoria.

In connection with the meetings, the society held an exhibition in the chambers of the Progress Club, and it is estimated that 20,000 people visited the display. This was divided into two departments, one showing the architects' plans, sketches and drawings exclusively, and the other showing exhibits of building materials, builders' hardware and other essentials of construction.

To those interested in the artistic future of a city or town, this exhibition was well worth seeing. It included many drawings and designs of famous, as well as local, buildings and suggestions for the future laying out of Vancouver.

### Builders' Exchange Outing

Around London, Ont., the annual excursion of the Builders' Exchange has earned the reputation of being the most important and delightful outing of the year. This year they beat to a frazzle anything they have done in the past, and on August 2 a large number of members and their friends made a trip to Cleveland, Ohio. The special train left London early Saturday morning and made connections with St. Thomas and Port Stanley, where big crowds were picked up. Arrangements were made whereby the excursionists could return on Monday, so that a delightful week-end was



A section of the display at the exhibition of the British Columbia Society of Architects.



spent. The entertainment committee worked themselves to death, and music, refreshments, prizes and surprises were furnished on board the boat. F. S. Barelay is secretary of this exchange.

### An Invitation to Visit Toronto Fair

Every builder and contractor who visits this year's exhibition at Toronto has an invitation to call at the display of Wettlaufer Bros. This firm is putting forth special effort and will have on view the largest display of contractors' and builders' machinery and equipment ever made in this country. They have acquired a space of 150 x 150 feet to the south of the poultry building, the old cattle pens having been removed. A special staff of men has been secured who will demonstrate in actual operation brick making machines, from the smallest hand machine to the large power type.

Fourteen different styles and types of concrete and mortar mixers will be in operation and will cover all branches of this work.

A big feature of the exhibit will be an extensive display of contractors' electric, steam and gasoline hoisting machinery. The range in this line is a wide one and includes the small one that handles but one barrel at a time at a speed of 100 feet per minute, up to the bigger ones that will carry two tons at a speed of 750 feet per minute.

Other demonstrations will include the making of

concrete blocks, drain and culvert tile, road paving, stone crushing operations, etc. Continuous pumping outfits will be shown working under conditions as near the ordinary as it is possible to secure them.

A full list of the firm's 1914 line of cement sidewalk tools also will be exhibited.

Rest rooms will be provided, all the members of the firm will be in attendance, and Wettlaufer Bros. extend an invitation to all builders and contractors to call and see their machines in operation, have a chat, leave parcels and, generally, to "make yourself at home."

### Keeping Woodworking Plants Clean Assists Production

At the shops of the Montreal Tramways Co. an exhauster has been placed in the basement of the woodworking plant, by which the shavings and sawdust are drawn from the machines, or the sweepings from the floors and sent over to the boiler room, where they are used as fuel.

Not only does this eliminate chances of fires in this department, but it keeps the machinery from being clogged with shavings. What is more important, it keeps the air in the woodworking shop free of wood dust, which has such an evil effect on workmen. The workmen, assured of pure air in the shop, are able to work to better advantage.



Another view of the exhibition of the British Columbia Society of Architects.

# Brick Work and Plastering

## Plaster and Plaster Cornices

*Some Comments on English Practice as Regards Interior Cornices of Plaster*

*By John Y. Dunlop*

Plaster is the popular name for the ordinary covering of lime and sand as applied to walls. Technically the word "plaster" often signifies plaster of Paris. Ordinary plaster consists of slacked lime and sand.

Two coat work consists of a first coat of coarse stuff; that is, slacked lime mixed with sand in the proportion of 1:3, a little cow hair being added to bind the mixture together. The plaster should be stiff enough to hold together and just soft enough to form a key on the prepared wall.

In a lathed wall it should be wrought well in between the lath with the point of the trowel and bulged out between the lath into excrescences which form a key and keep the plaster in position. The surface is roughed over by scratching with a birch broom or with a scratching stick so as to form a key for the second coat.

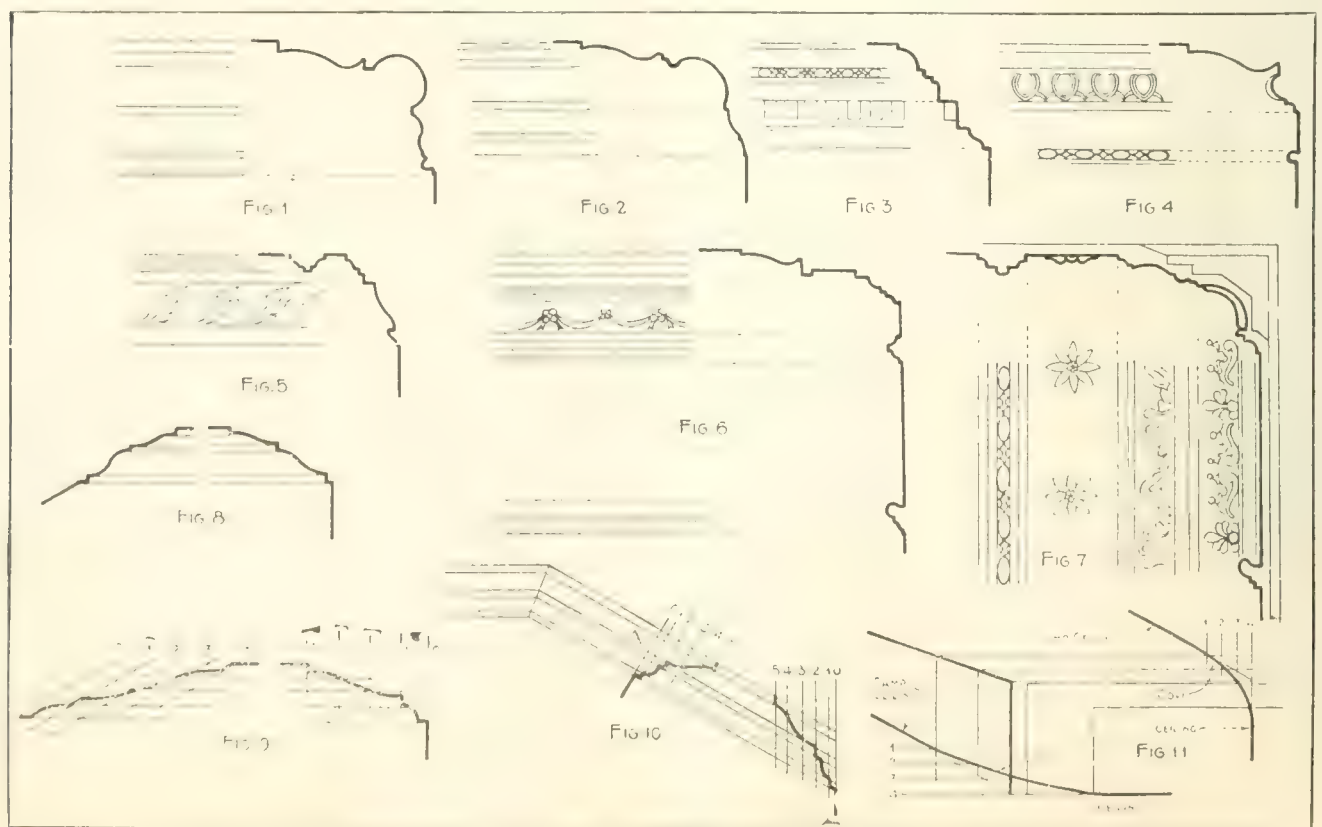
The second coat or setting is a thin layer of putty or gauged stuff and should not be troweled on until the first layer is stiff. If the latter has become very dry it must be first moistened before the second coat is applied or the latter in shrinking will have its moisture sucked out, crack and fall off. As the fine

stuff is laid on, the surface is smoothed by drawing backward and forward over it the wet brush used for dampening the first coat. This is one of the cheapest of plasters and is used in inferior work.

Three coat work insures a truer and better surface, and consists of a first or rendering coat which is laid on as before described, but in order to form a good key for the next coat the surface is scored with the points of a number of lath in deep scratches crossing each other diagonally into sets of parallel lines about 3 or 4 inches apart.

The second or floating coat is applied when the first coat is sufficiently dry to resist pressure. At this stage the wall is straightened from floor to ceiling and from end to end. It is done by forming in a true plane narrow bands or screeds of plaster 6 or 7 inches wide and at intervals of from about 4 to 10 ft. on the walls or ceilings. The surfaces are then brought into the required plane by passing long straight-edges over them. Horizontal screeds for ceilings would be beveled and vertical screeds plumbed up from the floor level or skirting ground. The space between the screeds is then filled flush with the plaster and smoothed over with the straight edge, after which the surface is gone over with a small hand float, and any defect made good by adding a little soft stuff.

Before applying the third coating or setting the floated surface should be scratched slightly by fixing



*Plaster and Plaster Cornices*



a projecting edge of the sand float and polishing over.

The mixture for the setting coat varies according to the nature of the finish required. If the surface is to be papered it should be set with fine stuff, and if the wall is to be tinted it should be of plasterer's putty mixed with a little fine sand.

If the surface is required to set quickly, especially in damp weather, from 1-6 to 1-3 plaster of Paris should be added to the stuff, which should be gauged or mixed in small quantities. The last coat is finished with a wooden float or steel trowel, the latter giving the smoother surface.

### Backing Required on Ceilings and Wood Partitions

On ceilings and wood partitions it is necessary to provide a backing to which the plaster will adhere. This is usually formed with laths of oak or fir about 1 in. wide and nailed to the studs or ceiling joist about  $\frac{1}{4}$  of an inch apart. Single lath are about  $\frac{3}{16}$  in. thick, lath and a half are  $\frac{1}{4}$  of an inch thick, and double lath are  $\frac{3}{8}$  of an inch thick.

More fire-resisting substances are now to be obtained in metal lathing which have all been severely tested in actual fires.

Ordinary plaster is undoubtedly porous and absorbs both moisture and organic matter, and in the case of hospitals is liable to be contaminated by impurities given off by the lungs of patients which may prove a source of discomfort and ill-health.

A harder and more impervious wall covering may be obtained by using either Portland cement or one of the so-called cements having plaster of Paris for a base. These have the further advantage that they set at once and can be painted in a very short time after being finished, whereas ordinary plaster frequently takes weeks to harden and cannot be satisfactorily painted for a long time.

Fibrous plaster has a plaster face on a canvas backing, and can be obtained in plain slabs of various sizes which are simply fixed to the wood studs or ceiling joists by screw nails. A thin coat of plaster of Paris is then applied to the whole, covering the joints and rendering the surface uniform. A great saving of time is thus effected by the use of fibrous plaster slabs, and a house can be safely occupied much sooner than when ordinary plaster, or even cement, is used.

Ornamental fibrous slabs are now made in endless variety, and can be fixed to form the ceiling frieze or cornice of important rooms of a building.

Plaster molding and enrichments are often receptive and therefore difficult to clean, but undoubtedly a great change for the better is now taking place. The days of deep hollows in cornices and bold enrichments are numbered and taste has reverted to a more refined detail of a century or two ago.

### Various Styles of Cornices

A simple but effective cornice, without any dirt-catching members is obtained by the elaboration of the surfaces of the plaster. Figs. 1 and 2 of the accompanying sketches represent simple cornices with no enrichments. Fig. 3, however, shows a classic cornice with dentil blocks and bead and reel enrichment.

In Fig. 4 is presented a cornice with egg and tongue enrichment suitable for a dining-room. Figs. 5 and 6 have plaster enrichment applied, which is from stock patterns obtained from the usual makers, although they are sometimes specially molded.

In Fig. 7 is shown a fine design of cornice for a dining-room, with elaborate enrichment and frieze, the lower part being formed with the picture molding.

Cornices should be as high in design as possible in

order to give the desired effects, and if their greatest projection is not more than 2 in. a backing of coarse stuff will be sufficient to support them. If, however, the projection is 6 in. or more brackets of wood roughly cut to the section of the cornice as indicated in Fig. 7 should be fixed along the wall at intervals of 12 in. Upon these lath are nailed and covered with a thick coat of coarse stuff, so that a rough edition of the future cornice is produced.

A mold made of zinc fixed onto wood is then for the time muffled by covering the profile edge with a layer of plaster of Paris about  $\frac{1}{8}$  in. thick. The mold is then drawn along over the surface of the rough cornice of coarse stuff already formed. It is guided by battens fixed on the ceiling and wall, and the effect produced by sliding the mold along is to remove the surplus stuff and leave the cornice molded approximately to the form required. The surface all over is about  $\frac{1}{8}$  of an inch within the intended profile. The muffling is now removed from the mold and the surface of the cornice covered with gauged stuff, over which the mold is worked until the exact form of the cornice is obtained.

The miters in the angles, as well as all small breaks, are finished by hand, and the indentations which have to be left for the enrichment of plaster of Paris are cemented into place.

The size of a cornice should be regulated by the height and width of the room, and in expensive mansions it is always advisable to run a trial length to judge of the effects produced.

### Some of the Difficulties Experienced

In running cornices in the attic with camp ceilings, difficulties are sometimes experienced in getting the cornice to run right around the room. Fig. 9 shows a section of the cornice on a ceiling and camp ceiling. Both sections are alike, but this, however, cannot always be carried out. Fig. 9 shows a cornice in which a special mold is made for the sloping ceiling. To obtain the raking mold, divide the projection of the ordinary cornice into any number of parts; set off the same distances from the sloping ceiling and take a horizontal line across which will determine the points in the new profile. In Fig. 10 is shown a cornice for an apartment similar to that last referred to, only here the level cornice is run at the lower edge of the camp ceiling, with the result that a cornice is required on the rake from the wall to the ceiling. The raking molding is shown at A, and the molding on the ceiling is of the same section as "A."

In Fig. 11 is shown the sections of the cove which is formed at the junction of the ceiling and camp ceiling. In this example the camp ceiling of the side is at 30 degrees and the end at 60 degrees to the horizontal. The principles involved in working out the sections are clearly shown, and do not call for special comment.—Building Age.

### Comparative Mortar Tests With Mixtures of Normal Consistency and Work Consistency

Results of comparative tests of mortars of both standard sand and natural sand and in mixtures of the ordinary dry consistency of the laboratory and of the wet or fluid consistency common in actual construction are contained in a paper by Mr. W. B. Reinke before the American Society for Testing Materials. We give the substance of these results as follows:

The method of procedure is as follows: The sand to

be tested and Ottawa sand are first made into mortars of normal consistency, using preferably cement from the work. These mortars are then made into briquettes, the whole operation being in accordance with the prescribed methods of this society for the making of sand briquettes when testing cement. The amount of water necessary to make a mortar of normal consistency having been found, a new batch of sand and cement in the desired proportions is thoroughly mixed dry and placed in a cylinder that can be revolved, together with a number of flint pebbles, so that the proportion of the cement, sand and stone will approximate that desired in the actual work. To this mix is added enough water (generally about 50 per cent. more than needed for normal consistency) to make a mortar having work consistency. The cylinder is then closed and revolved for five minutes. The flint pebbles are picked out by hand and the mortar is made into briquettes. This test more closely approximates the conditions found in actual work, and the strengths obtained from briquettes made from such a mortar, though, as a rule, far below those obtained from a mortar of normal consistency, correspond to those that may be reasonably expected from the mortar if the sand and same cement are used in construction.

It is to be noted that in most cases, using the same cement, more water will be needed to bring a natural sand to normal consistency than is necessary with Ottawa sand. This difference in the amount of water required is accounted for by the difference in granulometric grading, the work sand, as a rule, having the greater amount of fine material, and hence more surface to be covered and a larger percentage of voids.

Further, it is to be noted that the strengths obtained from a natural sand when made into a mortar of normal consistency are often equal to or greater than those obtained with the same cement, using Ottawa sand. When the same natural sand and cement are made into a mortar of work consistency, which requires about  $1\frac{1}{2}$  times as much water as for normal consistency, the reduction of strength will be more or less marked, depending on the character of the natural sand. The strength of all sand mortars is affected by the amount of water used over that required for normal consistency. The more water used, the greater will be the loss in strength at early periods. The nearer a natural sand approaches the ideal in physical and chemical composition, the less will be the loss in strength for each additional per cent. of water added. The amount of water required to bring a given sand to work consistency forms one of the best measures of the quality of sand.

In mixtures using 50 per cent. more water than required to produce normal consistency, Ottawa sand and good natural sands lose from 25 to 35 per cent. of their strength up to the 28-day period, while a poor sand may lose as much as 70 or 80 per cent. of the strength developed when made into mortars of normal consistency. It has been found by experience that with two sands, other things being equal, the one having the smaller amount of fine material will have the less amount of surface to be covered, and when mixed with a given amount of cement will need less water to produce a definite consistency than the one containing a larger proportion of fine material.

It is maintained by some that in making comparative tests of sand, the same amount of water should be used with each sand, overlooking the fact that in actual work one sand will require more water than another to bring the mortar to the consistency required by the work. We cannot assume that the same percentage of water will give the same consistency with two different

sands. If this practice is followed one sand may have too much water and the other too little. In the actual work where the sand is to be used, a concrete of a certain consistency will be made with no regard to how much water is needed to obtain it, and in order that the test give a correct indication of the strength the sand will develop under actual work conditions, the test mortars should be made of a corresponding consistency. As stated before, most natural sands take about  $1\frac{1}{2}$  times as much water to produce work consistency as is required for normal consistency. This, however, is not true of Ottawa sand which, while taking less water to produce normal consistency, requires more than 50 per cent. addition to produce a mortar of work consistency. In general, it may be assumed:

(1) That the less water required to produce a mortar of a given consistency, the higher will be the strength developed by the sand.

(2) That the coarser the sand, other things being equal, the greater will be the strength developed.

(3) That the higher the silica content, other things being equal, the greater will be the strength developed.

(4) That where it is necessary to use sands of poor quality, loss in strength at early periods can be largely overcome by using a dry concrete.

(5) That the loss of strength is confined chiefly to short periods, being practically overcome with time.

## New Companies Incorporated

Didsbury Construction Co., Didsbury, Alta, \$2,500.

The Beaver Lumber Co., Limited, Toronto, \$75,000.

The Sutherland Construction Co., Limited, Toronto, \$40,000.

The Consolidated Brick and Tile Co., Limited, Toronto, \$40,000.

The Point Pelee Sand and Gravel Co., Limited, Point Pelee, Ont., \$20,000.

The Crookston Stone Co., Limited, Toronto, \$50,000. James A. Jelly, Shelburne, Ont., Robert Cooke, Harold, Ont., and Thomas H. Thompson, Madoc, Ont., are the provisional directors.

The Canadian Foote Co., Limited, Toronto, has been incorporated under provincial charter to manufacture and deal in concrete machinery. Capital stock, \$40,000. Fred B. Neeve, James A. Simpson, and Arthur A. Ridler, all of Toronto, are provisional directors.

A company known as the Anglo-Canadian Building and Construction Company, Saskatoon, Sask., plans to spend \$400,000 in the building of dwellings for occupation this fall. They will construct two hundred houses for sale on easy terms. They will erect 450 similar houses next year. The necessary money is already secured in England.

## Catalogue Review

**Modern Lighting of Country Homes.**—The Alexander Milburn Co., 1420 West Baltimore St., Baltimore, U.S.A., with branches and agents in Montreal, Toronto, Winnipeg and Vancouver, have issued a booklet dealing with the "Homegas" machine which generates gas for use in cooking and lighting. It shows how to figure out the size of machine required for various size houses, and gives information in regard to the construction of the machine.

No matter if your life is insignificant to the world as a whole, it is mighty important to yourself, so make the most of it.



# Concrete Department

## Water as an Element in Concrete Construction

The occasional failure of important concrete structures, when subjected to floods or other unexpected conditions, indicates that low cost and profits are given more consideration than strength and durability. Then, again, from the writer's observations of the work of others, he is led to believe that while a careful study has been made of cement, sand and aggregate, the function, purpose and effect of water in the mix is little understood.

Cement, sand and the coarser aggregates are inert solids without cohesive or adhesive power. Water, on the other hand, is a fluid without adhesive or sticking power to join two substances together. But water has a very strong surface tension. This is exhibited in what is known as capillary attraction. It is water that binds the inert materials together. This binding power is greatest when every particle of cement, sand and aggregate is covered with a continuous film of water. If too little water is present, or if it is not evenly distributed, the water film will be broken. If, on the other hand, the thickness of the film is increased to the filling of the interstices between the aggregate this binding power decreases until it is nothing when the solid particles of the mix become immersed in the water.

### Water Acts As a Lubricant.

In addition to being a binder of the solid elements of the mix, the water acts as a lubricant, allowing the solid particles to slip on one another and assume positions resulting in smaller interstices. This increases the density of the mass, and also the capillary attraction of the water film, provided there is not sufficient water present to destroy this film tension. When the excess of water destroys film tension the solids become separated or "suspended" in the fluid. The finer particles of cement "float" in the water, filling the interstices or settle from the mass on agitation, and at the same time the "lubrication" of the larger particles is not increased.

It is the finer particles of the cement that develop the greater strength, but when suspended in the fluid or separated from the mass, the "hands" of these particles are not sufficiently long to bridge the water gap separating them from one another or from the larger solids.

This film tension and lubrication can be easily illustrated by a couple of pieces of window or ground glass. Press together and separate by drawing apart at right angles to the plain of contact. Repeat the experiment with the glass dry, coated with a thin film of moisture, and immersed in water.

It is far easier to build up the water film by careful addition of water than it is to distribute the water after it has been added. If excess of water is added to one part of the mix, so as to "float" the fine particles of cement, it is a question if the film tension can be restored by mixing this with drier materials. This kind of concrete may appear all right, but one part of the mass will not be sufficiently lubricated so the solids

can assume the positions for greatest density, and the other parts will be over wet, so that the particles of solids will be separated by excess water, and film tension will be lacking in either case. When water is poured or flows from a pipe or nozzle, this is sure to be the effect. The less nearly the cement fills the interstices of the aggregate the more pronounced the effect will be from improper watering. When the water is in just the right proportion to furnish the lubricating effect and the greatest binding power, these forces tend of themselves to draw the particles together into the dense mass.

### Element Causing Crystallization.

The third property of water in concrete is to furnish the element that causes crystallization of the cement, giving to the concrete its strength. The observation of the writer leads to the belief that the crystal takes the best form when the water is present as just described. But this will not give sufficient water for the complete growth of the crystal. More water must be fed it during the time of curing in order to grow it to maturity.

So far we have dealt with only the ideal or theoretical requirements. Among all the methods, manners and systems of mixing concrete, there can be only one right, or ideal process for each particular combination of materials to develop its maximum strength and durability. But this may not be the most economical from the cost standpoint. A given aggregate with a given proportion of cement will, when properly handled in the watering and mixing, give a definite result. But it may be more economical to increase the cement content and do the work in a manner that will not develop the maximum strength. But until one knows the requirements of developing maximum strength, and the question of water is one of the greatest of these, he runs great risks in attempting to sacrifice construction efficiency to profits and low cost of construction.

The writer has used much bank gravel in concrete construction. He has found it economy to screen the fine from the coarse aggregate. Mix the fine aggregate and the cement, and then mix this with the coarse aggregate thoroughly drenched. Following thorough mixing, water as needed, is added by sprinkling until tempered to the proper consistency. The sand, fine aggregate, should be just sufficiently damp to cause the cement to adhere. This dampens the cement and establishes capillary attraction. The coarse aggregate has but little capillary attraction and, on mixing, its excess of water is taken up by the superior attraction of the finer materials. In this way the material is all bound together.

If the water is added to the mix of cement and sand, making a mortar into which to mix the coarse material, a very poor bond is established between the two classes of materials. If all of the materials are mixed together before the addition of water, it is very hard to add the water without washing the cement from the larger particles or drowning the cement and

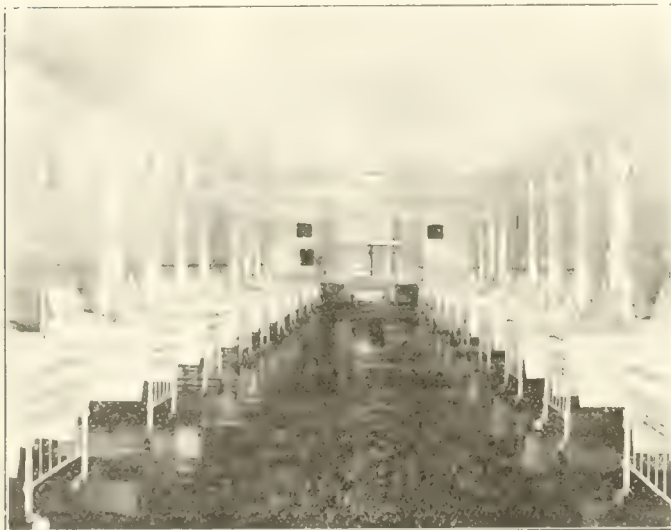
fine sand. What has been said of sand and gravel is equally true of sand and broken stone.

With proper watering and curing the same strength is developed with one-half the cement as with improper watering. And when the work is properly managed the cost is very slightly increased. This is true of either hand or power mixing. It is simply a question of whether it is best to add brains or additional cement to the mix.—Cement and Engineering News.

### A Large Contract for Sturgeons Limited

One of the largest jobs of its kind ever accomplished in Canada was that done by Sturgeon's, Limited, Toronto, who were given the contract of putting on the interior finish in the new General Hospital, Toronto. All the walls and woodwork throughout the institution were coated with Paripan. This treatment was adopted because it can be washed indefinitely, making it absolutely sanitary, and because of its lasting qualities.

In the accompanying illustration is seen one of the public wards in the new hospital, and the reflection of the light on the walls shows the wonderful finish that



One of the wards in Toronto's new general hospital. The finish on the walls and ceilings was produced with "Paripan."

was brought out with three coats of Paripan. This was accomplished with one coat of Paripan undercoating on the plaster, followed by one coat of Paripan flat. On top of this, the final coat of Paripan enamel was put. The color scheme adopted was white for ceilings, frieze of a light green tint and dado of a slightly deeper shade of green.

### A Good, Cheap Concrete Fence

A concrete fence which should prove of interest to our readers was recently designed by R. V. Moss, city surveyor of New York City, for the Glen Ridge tennis courts.

A strong and durable fence was desired, of neat appearance, one that could be quickly erected and at low cost.

At 12-foot 1-inch centres 3-inch I-beams 12 feet 6 inches in length were sunk in the ground to a depth of 2 feet 6 inches, leaving ten feet of post above the surface.

The flanges of these beams were wrapped with expanded metal lath to a height of six feet above grade to carry cement plaster.

A 2-inch by 3-inch spruce bottom rail was placed between the posts along the ground and a top rail of the same size at a height of six feet with reinforcing plates extended to cover the space between.

The concrete was then applied on the reinforcing plates to a thickness of three inches.

Above the reinforced concrete portion of the fence wire netting is fastened to the height of four feet, making the entire height of the fence ten feet, six feet of which is concrete and the remainder wire.

The cost of this type of fence is extremely low, especially for the concrete portion of it, which, in this case, is increased by the fact that the I-beam posts extend four feet above the concrete to carry the netting.

The concrete portion alone cost about 25 or 30 cents per square foot, including the contractor's profit, which made the cost of the six-foot fence from \$1.50 to \$1.80 per lineal foot.

### Factor of Safety in Reinforced Concrete

*By Robert G. Clark, A.M., Inst. C.E.*

The factor of safety in a reinforced concrete structure has generally been devoted by the ratio of the maximum working stress in the steel to the ultimate strength of the steel. For example, assuming that the working stress is 16,000 pounds per square inch, and the ultimate strength is 64,000 pounds per square inch, the factor of safety would be 4 by this theory.

Others, again, take the view that if the steel is stressed beyond the elastic limit the structure has to all intents and purposes failed; and taking this line of reasoning, the factor of safety is expressed by the ratio of maximum working stress to the elastic limit of the steel. Assuming the working stress at 16,000 pounds per square inch and the elastic limit at 45,000 pounds per square inch, we then have the factor of safety reduced to about 2.75. This, however, is purely a theoretical calculation which deals with steel only; but in any scientifically designed reinforced work, we know that the concrete shares with the steel an equal responsibility concerning the stability of the structure, so that, before the factor of safety can be accurately determined, it is essential to see that the concrete also has an ample margin of safety. This point is too frequently overlooked.

The designer in the matter of the quality of the steel can safeguard himself by specifying that the Standard Specification must be adhered to, but unfortunately no such standard is available for the concrete. It is true that, so far as the cement is concerned, we have the assistance of the Standard Specification as regards quality; but in the matter of the quantity of cement, the greatest latitude is allowed when we have mixtures varying from 1 : 4 to 1 : 9 parts of cement to aggregate.

Dealing with the aggregate used for the concrete, this is more or less controlled by the materials available in any given district; and here, again, to make matters worse, much difference of opinion exists as to suitable concrete materials. Very often the selection is left to the contractor, whose natural aim is to get something cheap in order to outstrip his competitors; and as the designer is generally many miles away, he may not know of this arrangement, and the prejudicial effect it may have upon the factors of safety provided by his elaborate calculations.

In the past it cannot be denied that the concrete has been more or less overshadowed by the advocates



of particular kinds of reinforcing steel, but the concrete in reality needs more attention than the steel, not only because of the reasons stated above, but also for the reason that the lifetime of the structure depends upon the efficient protection of the steel from corrosion. Therefore, as we assume in assessing the factor of safety of the steel that it will not deteriorate, every care must be taken to protect it, and this can be done only by having the concrete composed of the best materials available, carefully graded, and mixed with a generous quantity of the best cement.

It is by no means uncommon for competitors to state their calculated factor of safety, and it is interesting to note that for precisely the same work the factors of safety given by various firms vary from 4 to 9. How the latter figure is arrived at is frequently a mystery, especially in cases where the firm submitting the lowest tender quote the highest safety factor.

It is obvious that something should be done to standardize the method of calculating the factor of safety, and that any method adopted should include due consideration of the strength of the concrete mixtures. It is altogether unfair to fix a limit of working stress on the concrete, unless enquiry is also made into its constituent parts, as the limit may be much too low for some mixtures, or too high for others.

In conclusion, it must be pointed out that the actual factor of safety is much above the calculated value if the best materials are used, but it should be remembered that the calculated factor of safety is used only for the purpose of comparison. With a good concrete, and steel efficiently protected, the factor of safety increases as time progresses, owing to the fact that the concrete increases in strength with age, and in this

respect affords a striking contrast with structural steel, timber, or brickwork, which are at their best when new.—Ferro-Concrete.

## New Catalog of London Concrete Machinery Co.

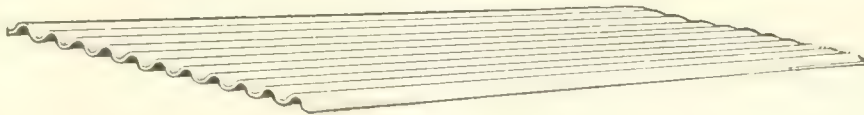
The London Concrete Machinery Co. London, Ontario, have issued a new catalogue for 1913-14. It is a comprehensive one of 168 pages, 7 x 10 inches, well illustrated. In the announcement it is pointed out that the London Concrete Machinery Co. specialize in concrete machinery, and that their machinery has won medals and diplomas at the various exhibitions.

In the following pages there are described and illustrated the various appliances manufactured by them, such as drum batch mixers, street paving mixers, adjustable concrete building block machines, cement pressed brick machines, tile machines, adjustable sill, step and window cap moulds, ornamental moulds, concrete wheelbarrows, etc.

One chapter is devoted to the various designs of blocks made on the London machines. Then follows views of a large number of concrete block buildings such as houses, stores, churches, barn foundations, silos, etc. A lot of good information is included, which will be found useful to anyone interested in concrete blocks and concrete machinery.

Look for pleasure in your work. The more of it you can find, the easier it will make your work, the happier you will be, and all the more likely to make good progress in your calling.

# Asbestos Corrugated Sheathing



## Lessens Depreciation

The sum which must annually be spent on upkeep and written off for depreciation of buildings can be greatly reduced by the use of Asbestos Corrugated Sheathing.

A Mill, Elevator, Freight Shed, Factory or Warehouse roofed and sheathed with this material presents a practically everlasting exterior, proof against fire and the elements.

Made of two indestructible materials, Portland Cement and Asbestos, this sheathing is not subject to rust or decay, and never requires painting or

waterproofing. In fact it grows harder and tougher with age and exposure.

Asbestos Corrugated Sheathing is made in standard lengths of 4, 5, 6, 7, 8, 9 and 10 feet by 27½ inches wide, with corrugations of 2½ inch pitch.

Write for our Booklet T.B. which shows in detail the methods we have perfected of attaching sheets to wood and steel framing, and of covering ridges and corners.

## Asbestos Manufacturing Co., Limited

Address E. T. Bank Bldg., Montreal

Factory at Lachine, Que. (near Montreal)

# Price List of Building Materials—Revised to Date

	PRICE AT MONTREAL	PRICE AT TORONTO	PRICE AT WINNIPEG	PRICE AT VANCOUVER
<b>Hemlock Lumber</b>				
2 x 4 in. to 2 x 12 in., 3 to 16 ft.....	\$24.00	\$27.00 to 29.00	\$29.00	
2 x 4 in. to 2 x 12 in., 10 ft.....	26.00	27.00 to 29.00	29.00	
2 x 4 in. to 2 x 12 in., 18 ft.....	28.00 to 30.00	30.00	29.00	
1 in. Hemlock No. 1 .....	22.00	28.00		
No. 1 hemlock decking .....	23.00 to 25.00	27.00 to 29.00		
No. 2 hemlock dimension and 1 in.....	26.00 to 30.00	24.00		
<b>Pine</b>				
1 in. common and better pine 8 to 12 in. wide, rough .....	\$32.00 to 40.00	\$38.00 to 40.00		
2 in. white pine, bill stock.....	29.00 to 33.00	29.00 to 34.00		
3/8 x 8 and 10 in. pine shelving .....	36.00 to 45.00	38.00 to 40.00		
3/8 x 12 pine shelving .....	42.00 to 50.00	45.00		
No. 1 white pine flooring .....	40.00	37.00		
No. 1 spruce flooring .....	30.00	32.00		
No. 1 pine decking, D2S .....	40.00	33.00		
Spruce decking .....		32.00		
No. 1 pine V. or beaded sheeting .....	40.00	39.00		
No. 2 pine V. or beaded sheeting .....	30.00	36.00		
<b>No. 1 Common Yellow Pine</b>				
2 x 4 in. to 2 x 14 in., 10 to 16 ft.....		\$32.00		
2 x 4 in. to 2 x 14 in., 18 to 20 ft.....		34.50		
2 x 4 in. to 2 x 14 in., 22 to 24 ft.....		37.00		
<b>Yellow Pine Finish</b>				
4/4 x 6, 8, 10 and 12 B. & B. Steam Finish....		\$41.00		
5/4 x " " " " " " .....		45.00		
6 1/4 x " " " " " " .....		45.00		
8 1/4 x " " " " " " .....		45.00		
4 1/4 x " " " " " " Smoke Finish....		39.00 to 40.00		
5 1/4 x " " " " " " " " .....		41.00 to 45.00		
6 1/4 x " " " " " " " " .....		41.00 to 45.00		
8 1/4 x " " " " " " " " .....		41.00 to 45.00		
<b>Pine Trim for Paint Finish</b>				
4 in. casing, per 100 ft.....	\$1.75	\$2.00		
5 in. casing, per 100 ft.....	2.10	2.50		
8 in. pine base, per 100 ft.....	3.25	3.48		
10 in. pine base, per 100 ft.....	4.20	4.54		
4 in. pine window stool, per 100 ft.....	2.75	3.00		
<b>Shingles, Lath Roofing, Etc.</b>				
XXX B. C. cedar shingles .....		\$4.00 per M	\$4.00 & 3.50 per M	\$2.20 & 2.10 per M
N. B. Extras .....		4.25 to 4.40		
No. 1 pine lath .....	5.00	5.50 per M	5.75 per M	2.25 per M
No. 2 pine lath .....	4.50	5.00		
No. 1 spruce lath .....	4.00	4.50		
Metal lath .....			.16 to .20	
Roofing Felt .....		1 ply—\$1.60 per sq. 2 ply— 2.00 " 3 ply— 2.40 "	2.50 per roll	
<b>Cedar Posts—Fence</b>				
5 in. at small end .....	5c. foot	.30 each		
7 in. at small end .....	7c. foot	.35 each		
<b>Hardware</b>				
Nails, wire, common .....	\$2.30 base keg	\$2.35 cwt.	\$2.90 per keg	\$3.25 per keg
Nails, cut, common .....	2.50 " "	2.95	3.35	4.25
Sash weights, cast iron .....	1.50 per 100 lbs.	1.75		
Tarred felt paper .....	.43 roll	.65 roll	.90 per roll	.90 per roll
Building paper .....	.35 roll	.45	.75	.70
Insulating paper .....			1.25	
<b>Glass</b>				
United miles		Star D.D.		
Up 25 .....		\$4.25 6.25		
26-40 .....		4.65 6.75		
41-50 .....		5.10 7.50		
51-60 .....		5.35 8.50		
61-70 .....		5.75 9.75		
71-80 .....		6.25 11.00		
81-85 .....		7.00 12.50		
86-90 .....		7.75 15.00		
91-95 .....				17.50
96-100 .....				20.50

NOTE TO READERS. We would be glad to have suggestions from readers as to the extension or modification of this list.



## Price List of Building Materials—Continued.

Glass <i>Continued.</i>	PRICE AT MONTREAL	PRICE AT TORONTO	PRICE AT WINNIPEG	PRICE AT VANCOUVER
101-105 .....		24.00		
106-110 .....		27.50		
Less 10 percent. f.o.b. Toronto.				
Wired Glass .....		20c. per sq. ft.		
<b>Brick, Tile, Terra Cotta, Sewer Pipe</b>				
No. 1 dry pressed red brick .....	18.00	\$18.00 per M	\$25.00 to 50.00	\$45.00 per M
No. 1 dry pressed buff bricks .....	20.50	18.00	25.00 to 50.00	45.00
Red stock bricks .....	11.50	12.50	13.00	13.00
Sand Lime Brick .....		8.50 to 9.00	13.00	
Grey stock bricks .....	12.00	12.00		
Wire cut bricks for foundation work ..	10.00	11.50		
Porous terra cotta bricks .....		15.00	\$15.00 per M	
No. 1 enamelled bricks, all colors, from		80.00 to 150.00	100.00	
Fire brick .....	25.00		45.00	45.00
Oriental Brick .....		30.00		
Roofing tile .....			.15 per ft.	
Sewer pipe, 4-inch .....	10c. foot		.10½ per ft.	.14 per ft.
Sewer pipe, 6-inch .....	15c. foot		.16½ per ft.	
<b>Cement, Plaster, Stone, Etc.</b>				
Cement (bags extra) .....	1.85 bbl.	{ \$1.80 bbl.	\$2.50 per bbl.	\$3.00 per bbl.
Sand, for cement or brick work .....	1.15 ton	{ (1.55 in car lots)	1.75 a yard	
Lime .....	.30 per 100 lbs.	.35 cwt.	.32 per bu.	1.25 per bbl.
Hydrated lime .....	10.00	10.00 ton	12.00 per ton	4.25 per bbl.
Mortar color .....	5.00 bbl.	black, 3; red, 1½	.05 per lb.	
Plaster of paris .....	3.00	2.50 bbl.	0.75 per bag	4 50 per bbl.
Crushed stone, 2 in. ....	1.50 t	1.40	2.50 per yard	
Crushed stone, 1 in. ....	1.60	1.45		
Crushed stone, ¾ in. ....	1.75	1.50	2.75	
Hardwall plaster .....	\$12.50 neat	\$12.00 neat	12.00 per ton	14.50 per ton
	6.00 sanded ton	4.00 sanded		
Gravel .....	1.85 yard	1.80	1.85 per yard	
Sair (plaster) .....	.03 per lb.	.04 lb.	1.25 per bale	14.50 per ton

NOTE TO READERS. We would be glad to have suggestions from readers as to the extension or modification of this list.

## Notice to Readers

Have you put up what you consider an attractive house recently?

You will have drawings or blue prints, bills of materials and specifications.

Why not send them to us for publication in The Canadian Builder. The advertising you would get as a result would make it well worth your while.

The Commercial Press, Limited  
Toronto

**Solignum**  
WOOD PRESERVATIVE & STAIN  
Made in Hull, England  
Preservative for  
Fence posts, Telephone  
Cross Arms, Etc., Etc.

Color Stain for Shingles and Outside Woodwork  
in Greens, Reds and Browns

**PARIPAN** Made by Randall Bros.  
London, England

A Lacquer Enamel, attributes:

Brilliant Surface

Washable and Sanitary

All different colors for  
inside and outside  
use

Cheap as Paint but  
much superior



**STURGEONS LIMITED, Toronto**

— or Agents —

Montreal — United Supply Co.  
Winnipeg — Hackney Tile & Supply Co.

Vancouver — E. G. Cullen  
Regina — Robson Supply Co.  
Edmonton — Davies & Moyle  
Calgary — Imperial Supply Co.

# Advertisements that Remind You

## Queen City Glass Co., Ltd.

*Dealers in*  
**PLATE, WINDOW, ORNAMENTAL**  
*and all other Glass required for Buildings*  
*Bevelers, Silverers and Glaziers to the trade.*

243-247 Victoria Street : TORONTO, ONT.

## EUGENE DIETZGEN COMPANY, LIMITED

*Manufacturers of*  
Drawing and Surveying Instruments and Supplies  
*Blue Print Papers, Blue Print Equipment, Blue Printing*  
116 Adelaide St. W., Toronto

## R. Laidlaw Lumber Co., Limited

*Everything in Lumber*

*Timbers, Sash Doors, Columns, Etc.*

Head Office: 65 Yonge St., TORONTO

## Powell Lumber and Door Co., Ltd.

KORELOCK and KLIMAX Doors  
In Oak, Birch and Fir  
*LARGE STOCK RIGHT PRICES PROMPT SHIPMENT*  
310-12 Front Street West, TORONTO



*Do away with Sash Weights, Cord, Pulleys, Etc.  
by using*

## AUTOMATIC SASH HOLDERS

*Proved by use*

Easily installed, simple, positive, durable. Saves money, prevents window rattling. For old as well as new windows. No smashed hands from dropping windows, no broken cords. Made in three sizes for sash weighing up to 3 lbs. or more. If your hardware dealer does not have them, write us for prices, circulars, etc.

**Smith Hardware Co., Limited**  
Montreal, Que.

## Readers Attention

**I**f you have any little problems you would like solved, write to the Editor.

He will place the problem before all the readers, and thus get the opinion of many on the question.

## High-Grade Builders' Hardware

*Complete line of*

Butts	Hinges
Hasps	Staples
Nails	And Other Lines

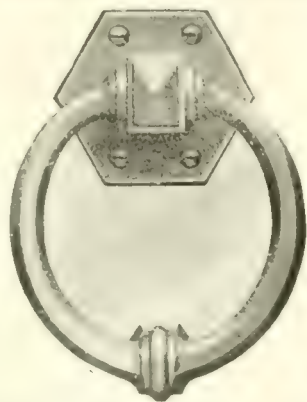
**Mr. Builder:** It will pay you to have our Catalogue of Builders' Hardware by you all the time. It's free to readers of The Canadian Builder and Carpenter.

**Cowan & Britton, Limited**  
Gananoque, Ont.

## Five Reasons for Subscribing to The Canadian Builder

It publishes plans of actual buildings suitable for erection by the average builder. It aims at raising the standard of the trade in Canada. It contains items of practical value in every department of the trade. It furnishes special articles by leading experts every month. It gives news of Builders' Exchanges throughout the country.





**HARDWARE**  
*Walker's*

The illustration shows the celebrated **Maymore Brass Knocker**. A knocker that combines artistic value with real practical use. It is a sample of the high grade line of

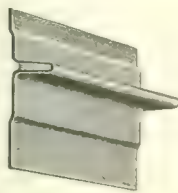
## BUILDERS' HARDWARE

we carry in stock. You can't beat it anywhere, and the wide range of prices offers you an exceptional opportunity to considerably cut down your expenses.

*It will pay you to make your inquiries NOW*

**W. Walker & Son** (WHOLESALE MERCHANTS)  
TO BUILDERS

1228 Yonge Street  
TORONTO



### The "Peace" Patent Improved Metal Weather Strip For Windows and Doors

To Carpenters and Builders this weather-strip constitutes a necessary part of the equipment in the building of factories, offices and residential property. It is wind and dust proof, and reduces fuel bills. Windows work easier with than without it. It does away with storm sash, and lasts a lifetime. Write for illustrated pamphlet or further information to

**WILLIAM PEACE CO., LIMITED**

Bank of Hamilton Building, Hamilton, Ont.

Phone 286

Live Agents Wanted

### IT WORKS LIKE A PLANE The Boss Floor Scraper

The Boss is the only Floor Scraper made that will plane a floor without leaving a square cut where knife first starts cutting. Why? Because the Boss is made with a Gauge on front, to which is attached a pear-shaped wheel which raises when machine is pulled and lets the knife down gradually.

The Boss can be set for any thickness of shaving, it also can be set for any shearing cut right or left, up or down, to suit the kind of lumber.

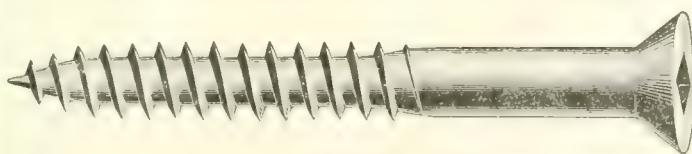
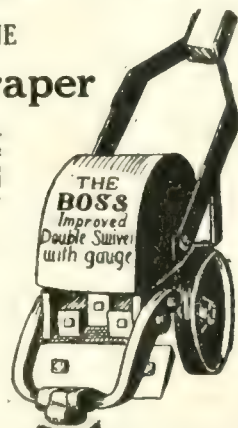
It is guaranteed to give absolute satisfaction.

**G. J. KEPPLINGER**

Main Office:

DWIGHT, ILL.

Manufactured also in London, Canada



Pat. Feb. 2, 1909

See  
That  
Square  
Hole



# SOCKET HEAD WOOD SCREWS

The advantages of this wood screw are many. The screw may be placed on the driver and driven at arm's length, with one hand. It is impossible for the driver to slip out of the socket. Quickly and easily driven. No burred heads.

Saves time, patience, money and material.

Drivers are made in a variety of suitable styles.

*Samples, prices and catalogue on request*

**P. L. Robertson Manufacturing Co., Ltd.**

Milton - - Ontario



# CLASSIFIED DIRECTORY—A BUYER'S GUIDE FOR BUILDERS IN CANADA

- Asbestos.**  
Asbestos Mfg. Co., Montreal.
- Asbestos Goods.**  
Asbestos Mfg. Co., Montreal.
- Alabastine.**  
Alabastine Co., Paris, Ont.
- Asphalt Felt**  
Braid & McCurdy, Winnipeg, Man.
- Automatic Gas-Steam Boilers.**  
Consumers' Gas Co., Toronto.
- Axes**  
Jas. Smart Mfg. Co., Brockville, Ont.
- Barrows and Concrete Carts**  
London Concrete Machinery Co., London, Ont.
- Baled Shavings**  
The R. Laidlaw Co., Limited, Toronto.
- Bath Tubs.**  
Standard Ideal Co., Port Hope, Ont.
- Band Saws**  
Shurley Dietrich Co., Limited, Galt, Ontario.
- Beaded Sheets.**  
Metal Shingle & Siding Co., Preston,  
Blinds, outside shutters  
The R. Laidlaw Co., Limited, Toronto.
- Blinds, Venetian**  
The R. Laidlaw Co., Limited, Toronto.
- Blind Hinges**  
Jas. Smart Mfg. Co., Brockville, Ont.
- Blue Printing**  
Eugene Dietzgen Co., Ltd., Toronto.
- Blue Print Papers**  
Eugene Dietzgen Co., Ltd., Toronto.
- Bolts (Expansion).**  
Freek, Clark & Co., Toronto.
- Brick Stains**  
Braid & McCurdy, Winnipeg, Man.
- Bronze (Cast).**  
W. H. Thornhill Co., Winnipeg.
- Builders' Elevators**  
Stuart Machinery Co., Winnipeg, Man.
- Builders' and Contractors' Supplies**  
The R. Laidlaw Co., Limited, Toronto.
- Builders' Hardware**  
Jas. Smart Mfg. Co., Brockville, Ont.  
Cowan & Britton, Limited, Gananoque, Ontario.
- Builders' Tools.**  
W. D. Beath & Sons, Toronto, Ont.  
Freek, Clark & Co., Toronto.
- Building Paper**  
The R. Laidlaw Co., Limited, Toronto.
- Butts and Hinges, Steel**  
Jas. Smart Mfg. Co., Brockville, Ont.  
Cowan & Britton, Limited, Gananoque, Ontario.
- Burial Vault Molds.**  
Ideal Concrete Machinery Co., London,  
Casement and Sash (Steel and Bronze).  
W. H. Thornhill Co., Winnipeg.
- Carts, Concrete**  
London Concrete Machinery Co., London, Ont.
- Closets.**  
Standard Ideal Co., Port Hope, Ont.
- Ceilings, Metal.**  
Metal Shingle & Siding Co., Preston,
- Ceilings and Walls, Embossed Steel.**  
Galt Art Metal Co., Galt, Ont.
- Cement (Portland).**  
Braid & McCurdy, Winnipeg, Man.  
Ontario Lime Association, Toronto.
- Cement Pools**  
Wettlaufer Bros., Toronto, Ont.
- Cement Stains**  
Braid & McCurdy, Winnipeg, Man.
- Cement Workers' Tools**  
London Concrete Machinery Co., London, Ont.
- Circular Saws**  
Shurley Dietrich Co., Limited, Galt, Ontario.
- Colors for Concrete.**  
Ideal Concrete Machinery Co., London,  
Columns  
The R. Laidlaw Co., Limited, Toronto.
- Concrete Block Machines.**  
Ideal Concrete Machinery Co., London,  
London Concrete Machinery Co., London, Ont.  
Wettlaufer Bros., Toronto.
- Concrete Brick Machine.**  
Ideal Concrete Machinery Co., London,  
London Concrete Machinery Co., London, Ont.  
Wettlaufer Bros., Toronto.
- Concrete Sill, Lintel and Dimension Stone Machines.**  
Ideal Concrete Machinery Co., London.
- Concrete Mixers.**  
Ideal Concrete Machinery Co., London.  
London Concrete Machinery Co., London, Ont.  
Stuart Machinery Co., Winnipeg, Man.  
Wettlaufer Bros., Toronto.
- Concrete Tile Machines.**  
Ideal Concrete Machinery Co., London.  
Wettlaufer Bros., Toronto.
- Concrete Reinforcements.**  
W. D. Beath & Sons, Toronto, Ont.  
Metal Shingle & Siding Co., Preston.
- Construction Companies.**  
Weber Mfg. Co., West Allis, Wis.
- Contractors and Builders.**  
Weber Mfg. Co., West Allis, Wis.
- Contractors' Machinery**  
Wettlaufer Bros., Toronto, Ont.
- Cornices, Galvanized or Copper.**  
Galt Art Metal Co., Galt, Ont.
- Corrugated Sheets (Asbestos).**  
Asbestos Mfg. Co., Montreal.
- Corrugated Sheets (Steel).**  
Galt Art Metal Co., Galt, Ont.  
Metal Shingle & Siding Co., Preston.  
W. D. Beath & Sons, Toronto, Ont.
- Crabs**  
Stuart Machinery Co., Winnipeg, Man.
- Cranes**  
W. D. Beath & Sons, Toronto, Ont.
- Crestings.**  
Metal Shingle & Siding Co., Preston.
- Crosscut Saws**  
Shurley Dietrich Co., Limited, Galt, Ontario.
- Crushers**  
Wettlaufer Bros., Toronto, Ont.
- Curb Stone Machines.**  
Ideal Concrete Machinery Co., London.  
W. D. Beath & Sons, Toronto, Ont.
- Cutouts.**  
Duncan Electrical Co., Montreal.
- Daylight Rods.**  
Consolidated Plate Glass Co., Toronto.
- Damp Proofing**  
Braid & McCurdy, Winnipeg, Man.
- Deadening Quilt**  
Braid & McCurdy, Winnipeg, Man.
- Derricks.**  
W. D. Beath & Sons, Toronto, Ont.  
Ideal Concrete Machinery Co., London  
London Concrete Machinery Co., London, Ont.  
Stuart Machinery Co., Winnipeg, Man.
- Doors**  
Wm. Rutherford, Sons & Co., Limited, Montreal, Que.  
The Bryan Mfg. Co., Collingwood, Ont.
- Doors (Wooden).**  
Canada Lumber Co., Toronto.  
L. A. DeLaplante, Limited, Toronto.  
The Bryan Mfg. Co., Collingwood, Ont.  
Georgian Bay Shook Mills, Limited, Midland, Ont.
- Doors, Veneered**  
The Bryan Mfg. Co., Collingwood, Ont.
- Door Trimmings.**  
Metal Shingle & Siding Co., Preston,  
W. H. Thornhill Co., Winnipeg
- Doors (Sheet Steel and Bronze).**  
W. H. Thornhill Co., Winnipeg.
- Drag Scrapers**  
London Concrete Machinery Co., London, Ont.
- Drawing Materials**  
Eugene Dietzgen Co., Ltd., Toronto.
- Driers**  
London Concrete Machinery Co., London, Ont.
- Drill Grinders.**  
Luther Grinder Mfg. Co., Milwaukee, Wisconsin.
- Drinking Fountains.**  
Standard Ideal Co., Port Hope, Ont.
- Eavestrough.**  
Metal Shingle & Siding Co., Preston,
- Eave-Trough and Conductor-Pipe.**  
Galt Art Metal Co., Galt, Ont.  
Metal Shingle & Siding Co., Preston.
- Edge Tools**  
Jas. Smart Mfg. Co., Brockville, Ont.
- Electrical Fixtures and Specialties.**  
Duncan Electrical Co., Montreal.  
W. H. Thornhill Co., Winnipeg.
- Engineers' Instruments and Supplies**  
Eugene Dietzgen Co., Ltd., Toronto.
- Expanded Metal.**  
Galt Art Metal Co., Galt, Ont.
- Fasteners, sash and screen**  
Cowan & Britton, Limited, Gananoque, Ontario.



Be Sure to See  
the finest and most complete  
line of  
**SAWS, TOOLS and FILES**  
in the world exhibited at our  
section in the  
**Canadian National Exhibition**  
Toronto

Then you will better understand  
why you can always

DEPEND ON  
DISSTON

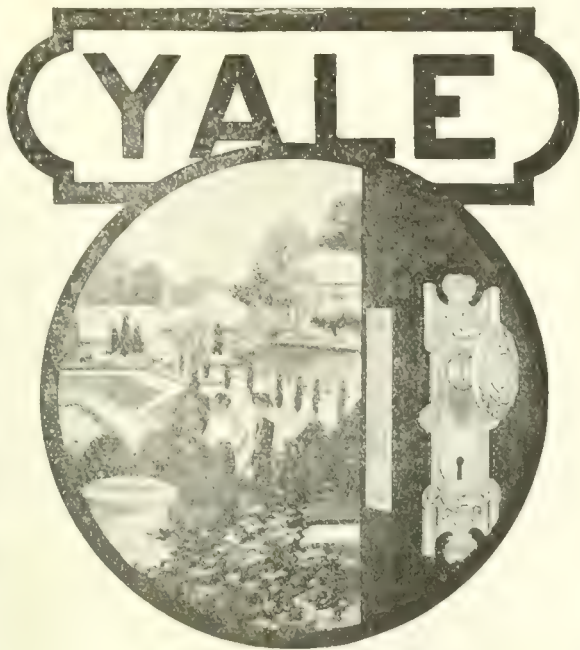
**HENRY DISSTON & SONS, Incorporated**  
Keystone Saw, Tool, Steel and File Works      PHILADELPHIA, U.S.A.

## CLASSIFIED DIRECTORY—Continued

- Fences.**  
 Dominion Ornamental Iron Co., Ltd., Toronto.  
 George B. Meadows, Toronto.
- Fence Post Mould**  
 London Concrete Machinery Co., London, Ont.
- Finials.**  
 Galt Art Metal Co., Galt, Ont.  
 Metal Shingle & Siding Co., Preston.
- Fire Escapes.**  
 Dominion Ornamental Iron Co., Ltd., Toronto.  
 George B. Meadows, Toronto.
- Fireproof Windows.**  
 Galt Art Metal Co., Galt, Ont.  
 Metal Shingle & Siding Co., Preston.
- Flooring, Hardwood.**  
 Georgian Bay Shook Mills, Midland.
- Flooring and Supplies**  
 The R. Laidlaw Co., Limited, Toronto.
- Floor Scrapers**  
 Braid & McCurdy, Winnipeg, Man.  
 Fox Supply Co., Brooklyn, Wis.  
 Hurley Machine Co., Limited, Toronto.
- Forge and Rivet Heaters.**  
 Consumers' Gas Co., Toronto.
- Furnaces**  
 Jas. Smart Mfg. Co., Brockville, Ont.
- Furnaces, Hot Air.**  
 Hall Zyrd Foundry Co., Hespeler, Ont.
- Galvanized Chain Pumps.**  
 Metal Shingle & Siding Co., Preston.
- Galvanized Iron Cornices.**  
 Metal Shingle & Siding Co., Preston.
- Galvanized Tanks.**  
 Metal Shingle & Siding Co., Preston.
- Gas Blow Pipes.**  
 Consumers' Gas Co., Toronto.
- Gas Engines.**  
 Consumers' Gas Co., Toronto.
- Gas Furnaces.**  
 Consumers' Gas Co., Toronto.
- Gas Lighting Appliances.**  
 Consumers' Gas Co., Toronto.
- Gas Fixtures.**  
 Consumers' Gas Co., Toronto.
- Gasoline Engines.**  
 Ideal Concrete Machinery Co., London.  
 London Concrete Machinery Co., London, Ont.  
 Wettlaufer Bros., Toronto, Ont.
- Gas Piping.**  
 Consumers' Gas Co., Toronto.
- Gas Ranges.**  
 Consumers' Gas Co., Toronto.
- Gas Water Heaters.**  
 Consumers' Gas Co., Toronto.
- Gates.**  
 Dominion Ornamental Iron Co., Ltd., Toronto.  
 George B. Meadows, Toronto.
- Glass.**  
 Consolidated Plate Glass Co., Toronto.  
 The Toronto Plate Glass & Importing Co., Toronto.  
 Queen City Glass Co., Toronto.
- Glue Pot Heaters.**  
 Consumers' Gas Co., Toronto.
- Granite (Crushed).**  
 Sand & Supplies, Toronto.
- Gravel**  
 Braid & McCurdy, Winnipeg, Man.
- Gravel Screens (Power).**  
 Ideal Concrete Machinery Co., London.
- Hair (Plasterers').**  
 Ontario Lime Association, Toronto.
- Hammers.**  
 Double Claw Hammer Co., Brooklyn, N.Y.
- Lewis Bros., Montreal.**  
 Jas. Smart Mfg. Co., Brockville, Ont.
- Hand Scrapers.**  
 Fox Supply Co., Brooklyn, Wis.
- Hand Saws**  
 Shurley Dietrich Co., Limited, Galt, Ontario.
- Hardware.**  
 Weber Mfg. Co., West Allis, Wis.
- Hardwood Flooring**  
 The R. Laidlaw Co., Limited, Toronto.
- Hangers and Fasteners**  
 Cowan & Britton, Limited, Gananoque, Ontario.
- Hangers, sash and screen**  
 Cowan & Britton, Limited, Gananoque, Ontario.
- Hasps**  
 Cowan & Britton, Limited, Gananoque, Ontario.
- Herringbone Lath.**  
 Metal Shingle & Siding Co., Preston, Ont.
- Hinges**  
 Cowan & Britton, Limited, Gananoque, Ontario.
- Hooks**  
 Cowan & Britton, Limited, Gananoque, Ontario.
- Hoists.**  
 Ideal Concrete Machinery Co., London.  
 London Concrete Machinery Co., London, Ont.  
 Stuart Machinery Co., Winnipeg, Man.  
 Wettlaufer Bros., Toronto.  
 W. D. Beath & Sons, Toronto, Ont.  
 Wettlaufer Bros., Toronto, Ont.
- Hoisting Engines**  
 London Concrete Machinery Co., London, Ont.  
 Stuart Machinery Co., Winnipeg, Man.
- Incinerators.**  
 Standard Ideal Co., Port Hope, Ont.
- Interior House Finish.**  
 L. A. DeLaplante, Limited, Toronto.  
 Georgian Bay Shook Mills, Midland, Ont.
- The Bryan Mfg. Co., Collingwood, Ont.**  
 Wm. Rutherford, Sons & Co., Limited, Montreal, Que.
- Jack Screws**  
 Jas. Smart Mfg. Co., Brockville, Ont.
- Keene's Cement**  
 Braid & McCurdy, Winnipeg, Man.
- Kindling Wood**  
 The R. Laidlaw Co., Limited, Toronto.
- Lath.**  
 Galt Art Metal Co., Galt, Ont.  
 The Bryan Mfg. Co., Collingwood, Ont.  
 The R. Laidlaw Co., Limited, Toronto.
- Lath (Metal)**  
 Braid & McCurdy, Winnipeg, Man.
- Laundry Tubs.**  
 Standard Ideal Co., Port Hope, Ont.
- Lime.**  
 Ontario Lime Association, Toronto.
- Lime, White or Gray**  
 Braid & McCurdy, Winnipeg, Man.
- Lumber**  
 Canada Lumber Co., Toronto.  
 The R. Laidlaw Co., Limited, Toronto.  
 The Bryan Mfg. Co., Collingwood, Ont.
- Mantels**  
 Kent, Garvin & Co., Hamilton.
- Metal Roofing and Siding.**  
 Galt Art Metal Co., Galt, Ont.
- Mortar Cement**  
 Braid & McCurdy, Winnipeg, Man.
- Mortar Colors.**  
 Manton Bros., 105 Elizabeth St., Toronto.  
 Ontario Lime Association, Toronto.
- Mortar Gauges.**  
 Ideal Concrete Machinery Co., London.
- Mortar Mixers**  
 London Concrete Machinery Co., London, Ont.
- Mortar Stains**  
 Braid & McCurdy, Winnipeg, Man.
- Mouldings.**  
 The Bryan Mfg. Co., Collingwood, Ont.  
 Builders' Moulding Co., Toronto.  
 L. A. DeLaplante, Limited, Toronto.  
 Georgian Bay Shook Mills, Limited, Midland, Ont.  
 Wm. Rutherford, Sons & Co., Limited, Montreal, Que.
- Nails (Self-clinching).**  
 Freek, Clark & Co., Toronto.
- Ornamental Iron Work.**  
 Dominion Ornamental Iron Co., Ltd., Toronto.  
 George B. Meadows, Toronto.
- Nail Pullers**  
 Cowan & Britton, Limited, Gananoque, Ontario.
- Nails**  
 Cowan & Britton, Limited, Gananoque, Ontario.
- Ornamental Moulds**  
 London Concrete Machinery Co., London, Ont.  
 Ideal Concrete Machinery Co., London.
- Paints (Waterproof).**  
 Freek, Clark & Co., Toronto.
- Paint Protective**  
 Braid & McCurdy, Winnipeg, Man.
- Plaster.**  
 Alabastine Co., Limited, Toronto.  
 Ontario Lime Association, Toronto.  
 Braid & McCurdy, Winnipeg, Man.
- Plaster (Hardwall).**  
 Alabastine Co., Paris, Ont.  
 Ontario Lime Association, Toronto.  
 Crown Gypsum Co., Lythmore, Ont.
- Plaster Corner Bead.**  
 Metal Shingle & Siding Co., Preston.  
 Braid & McCurdy, Winnipeg, Man.
- Plaster Paris.**  
 Alabastine Co., Paris, Ont.  
 Ontario Lime Association, Toronto.
- Plaster Stains**  
 Braid & McCurdy, Winnipeg, Man.
- Planing Mills**  
 The R. Laidlaw Co., Limited, Toronto.
- Plumbing Goods.**  
 Standard Ideal Co., Limited, Port Hope.
- Pulpstone.**  
 Alabastine Co., Paris, Ont.
- Pumps.**  
 Jas. Smart Mfg. Co., Brockville, Ont.  
 London Concrete Machinery Co., London, Ont.  
 Stuart Machinery Co., Winnipeg, Man.  
 Wettlaufer Bros., Toronto, Ont.
- Railings.**  
 Dominion Ornamental Iron Co., Ltd., Toronto.  
 George B. Meadows, Toronto.
- Ready Roofing**  
 The R. Laidlaw Co., Limited, Toronto.
- Receptacles (Electrical).**  
 Duncan Electrical Co., Montreal.
- Registers**  
 Jas. Smart Mfg. Co., Brockville, Ont.
- Ridge, Galvanized.**  
 Metal Shingle & Siding Co., Preston.
- Ridgings.**  
 Metal Shingle & Siding Co., Preston.
- Rock Crushers**  
 Wettlaufer Bros., Toronto, Ont.



All Yale Products bear the name "Yale"



Residence of Mr. Lyndard Blair, at Far Hills, N. J.  
Messrs. Carrere and Hastings, Architects

All that hardware needs to do is to serve a useful purpose. But that useful purpose is to *beautify* the home as well as satisfy the demands of service.

Yale Builders' Hardware offers a wide variety of artistic and appropriate designs from which to choose. Durability and fitness are assured when you get hardware made in the careful, skillful Yale way.

Write for our booklet, "A Word about Yale Locks and Hardware"

**Canadian Yale & Towne Ltd.**

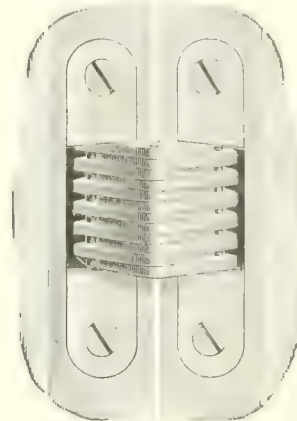
Makers of Yale Products in Canada:

Locks, Padlocks, Builders' Hardware, Door Checks and Chain Hoists

General Offices and Works: St. Catharines, Ont.

## Soss Invisible Hinge

For use on Panel Work, Lockers  
Closets, Counter Flaps, Partition  
Doors, Cabinets, etc.



Soss Invisible Hinges are made in a variety of sizes, the largest being adapted for largest size door.

Send for circular and prices; or buy from  
leading Hardware Dealers

**SOSS INVISIBLE HINGE CO., LIMITED**

104 Bathurst St., TORONTO

## Order the "HYNALER"

Best single claw hammer ever made.

Holds the nail for high, low or far across driving. Grips plain part of nail so strongly as to pull the head of nail clear through the wood.



**BEST HAMMER EVER MADE**

Order the "Double Claw." Drives faster than single claw hammer. Holds the nail for starting to drive where you cannot reach with two hands. Pulls the nail out straight without a block. All jobbers. Your own dealer will get it for you.

Manufactured by

**DOUBLE CLAW HAMMER CO.**

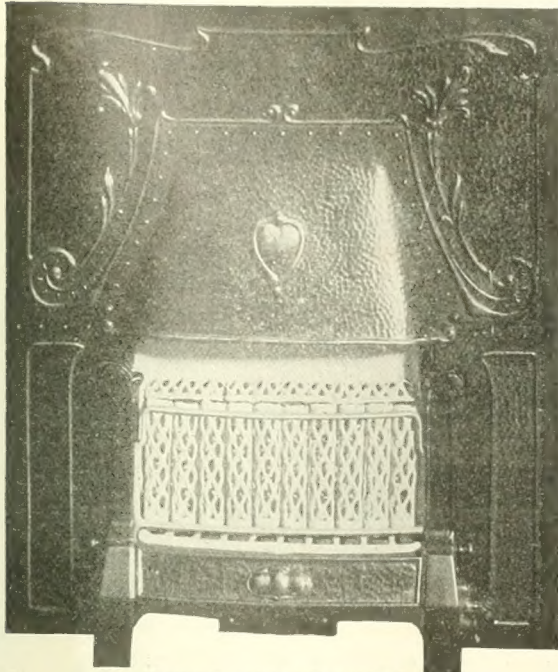
453 Broadway, Brooklyn, N.Y.

## CLASSIFIED DIRECTORY—Continued

- Roofing.**  
Asbestos Mfg. Co., Montreal.  
W. D. Beath & Sons, Toronto, Ont.  
Galt Art Metal Co., Galt, Ont.  
Metal Shingle & Siding Co., Preston, Ont.  
Patterson Mfg. Co., Limited, Toronto.  
Braid & McCurdy, Winnipeg, Man.
- Roofing Tile Machines.**  
Ideal Concrete Machinery Co., London.
- Sand**  
Braid & McCurdy, Winnipeg, Man.
- Sand Screens**  
Locked Wire Fence Co., Hamilton, Ont.
- Sand and Gravel.**  
Sand & Supplies, Toronto.
- Sand Sifting Machines**  
London Concrete Machinery Co., London, Ont.
- Sash.**  
The Bryan Mfg. Co., Collingwood, Ont.  
L. A. DeLaplante, Limited, Toronto.  
Georgian Bay Shook Mills, Limited, Midland, Ont.  
Wm. Rutherford, Sons & Co., Limited, Montreal, Que.  
The Bryan Mfg. Co., Collingwood, Ont.
- Sash Holders**  
Smith Hardware Co., Montreal.
- Sash Balances.**  
Freek, Clark & Co., Toronto.
- Sashes and Doors.**  
Pembroke Lumber Co., Pembroke, Ont.  
The R. Laidlaw Co., Limited, Toronto.
- Scaffold Brackets (Builders')**  
Folding Scaffold Bracket Co. Detroit.
- Scraper Knives.**  
Fox Supply Co., Brooklyn, Wis.
- Scrapers.**  
Fox Supply Co., Brooklyn, Wis.  
Hurley Machine Co., Toronto.
- Scrapers, Drag**  
London Concrete Machinery Co., London, Ont.
- Scrapers, Wheel**  
London Concrete Machinery Co., London, Ont.
- Scraper Sharpening Device.**  
Fox Supply Co., Brooklyn, Wis.
- Screens, Sand**  
London Concrete Machinery Co., London, Ont.
- Screens and Sidewalk Tools**  
Wettlaufer Bros., Toronto, Ont.
- Screens, window and door**  
The R. Laidlaw Co., Limited, Toronto.
- Seats, Implement.**  
Galt Art Metal Co., Galt, Ont.
- Sewer Pipe.**  
Ontario Lime Association, Toronto.
- Sewer Pipe Moulds**  
London Concrete Machinery Co., London, Ont.  
Ideal Concrete Machinery Co., London.
- Shingles, Galvanized Steel.**  
Galt Art Metal Co., Galt, Ont.
- Shingles**  
The Bryan Mfg. Co., Collingwood, Ont.
- Shingles, Metal.**
- Shingles, Wood**  
The Bryan Mfg. Co., Collingwood, Ont.
- Shingle Stain**  
Braid & McCurdy, Winnipeg, Man.
- Sidewalk Dividing Plates**  
London Concrete Machinery Co., London, Ont.
- Sidewalk Forms, Steel**  
London Concrete Machinery Co., London, Ont.
- Sill and Cap Moulds**  
London Concrete Machinery Co., London, Ont.
- Silo Block Machines**  
London Concrete Machinery Co., London, Ont.
- Sockets, Brass and Porcelain.**  
Duncan Electrical Co., Montreal.
- Soil Pipe.**  
Standard Ideal Co., Port Hope, Ont.
- Soil Pipe Fittings.**  
Standard Ideal Co., Port Hope, Ont.
- Soldering Iron Heaters.**  
Consumers' Gas Co., Toronto.
- Sound Deadener**  
Braid & McCurdy, Winnipeg, Man.
- Shooks.**  
Georgian Bay Shook Mills, Midland.
- Skylights.**  
Metal Shingle & Siding Co., Preston, Galt Art Metal Co., Galt, Ont.
- Sidewalk Prisms.**  
Consolidated Plate Glass Co., Toronto.
- Sidewalk Gratings**  
Locked Wire Fence Co., Hamilton, Ont.
- Siding, Steel.**  
Galt Art Metal Co., Galt, Ont.
- Sill and Cap Molds.**  
Ideal Concrete Machinery Co., London.
- Sinks (Kitchen and Wash).**  
Standard Ideal Co., Port Hope, Ont.
- Spanish Roofing Tile Machines.**  
Ideal Concrete Machinery Co., London.
- Stairs, Iron.**  
Dom. Ornamental Iron Co., Ltd., Toronto  
George B. Meadows, Toronto
- Stairways**  
The Bryan Mfg. Co., Collingwood, Ont.
- Staples**  
Cowan & Britton, Limited, Gananoque, Ontario.
- Stanchions.**  
Metal Shingle & Siding Co., Preston, W. D. Beath & Sons, Toronto, Ont.
- Stairs**  
The R. Laidlaw Co., Limited, Toronto.
- Steel Buildings and Garages.**  
Metal Shingle & Siding Co., Preston, W. D. Beath & Sons, Toronto, Ont.
- Steel Ceilings and Walls.**  
Galt Art Metal Co., Galt, Ont.
- Steam Engines**  
Wettlaufer Bros., Toronto, Ont.
- Stone (Crushed).**  
Ontario Lime Association, Toronto.  
Sand & Supplies, Toronto.
- Store Front Bars.**  
Consolidated Plate Glass Co., Toronto.
- Store Fronts**  
Braid & McCurdy, Winnipeg, Man.
- Storm Windows**  
Cowan & Britton, Limited, Gananoque, Ontario.
- Storm Sash**  
The R. Laidlaw Co., Limited, Toronto.
- Store Fixtures**  
Metal Shingle & Siding Co., Preston, The R. Laidlaw Co., Limited, Toronto.
- Surveying Instruments**  
Eugene Dietzgen Co., Ltd., Toronto.
- Terra Cotta.**  
Braid & McCurdy, Winnipeg, Man.  
W. H. Thornhill Co., Winnipeg.  
Toronto Plate Glass Importing Co., Toronto.
- Thimbles.**  
Metal Shingle & Siding Co., Preston.
- Tile, Block and Brick Cars**  
London Concrete Machinery Co., London, Ont.
- Tile (Hollow)**  
Braid & McCurdy, Winnipeg, Man.
- Tile Machine, Drain**  
London Concrete Machinery Co., London, Ont.
- Tile Machine, Sidewalk**  
London Concrete Machinery Co., London, Ont.
- Ties (Brick)**  
Braid & McCurdy, Winnipeg, Man.
- Timber**  
The R. Laidlaw Co., Limited, Toronto.
- Tool Sharpeners.**  
Luther Grinder Mfg. Co., Milwaukee, Wisconsin.
- Transmission Machinery**  
Stuart Machinery Co., Winnipeg, Man.
- Transfer Cars**  
London Concrete Machinery Co., London, Ont.
- Urinals.**  
Standard Ideal Co., Port Hope, Ont.
- Valley, Galvanized.**  
Metal Shingle & Siding Co., Preston.
- "V" Crimp Roofing and Siding.**  
Metal Shingle & Siding Co., Preston.
- Ventilators.**  
Galt Art Metal Co., Galt, Ont.  
Metal Shingle & Siding Co., Preston.
- Verandah Columns**  
The R. Laidlaw Co., Limited, Toronto.
- Wall Board**  
Braid & McCurdy, Winnipeg, Man.  
The R. Laidlaw Co., Limited, Toronto.
- Wall Plugs.**  
Ideal Concrete Machinery Co., London.
- Wall Coating.**  
Alabastine Co., Paris, Ont.
- Warm Air Heaters**  
Jas. Smart Mfg. Co., Brockville, Ont.
- Waterproof Paper**  
Braid & McCurdy, Winnipeg, Man.
- Waterproofing.**  
Ideal Concrete Machinery Co., London, W. H. Thornhill Co., Winnipeg.
- Watering Bowls for Stock.**  
Metal Shingle & Siding Co., Preston.
- Weather Strips.**  
William Pease Co., Hamilton.
- Window Frames—Complete.**  
Pembroke Lumber Co., Pembroke, Ont.
- Window Frames**  
The Bryan Mfg. Co., Collingwood, Ont.
- Window Guards**  
Locked Wire Fence Co., Hamilton, Ont.
- Window Trimmings.**  
Metal Shingle & Siding Co., Preston, W. H. Thornhill Co., Winnipeg.
- Window Screens**  
The R. Laidlaw Co., Limited, Toronto.
- Wire Rope**  
London Concrete Machinery Co., London, Ont.  
Stuart Machinery Co., Winnipeg, Man.
- Wire Work (Special)**  
Locked Wire Fence Co., Hamilton, Ont.  
George B. Meadows, Toronto.
- Woodworkers.**  
Elliot Woodworker Co., Toronto.  
Parks Ball Bearing Machine Co., Cincinnati, Ohio.  
M. Hutchinson, Toronto.



## Consider the Heating Problem



"THE RICHMOND"

Every Home Owner or Builder should consider the gas grate proposition. Thousands of homes in Toronto have grates installed that are very inefficient and practically useless because they were installed more with a view to cheapness rather than service.

### A Scientifically Constructed Gas Grate Should be in Every Home

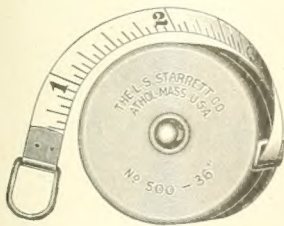
The "Richmond" Gas Grate shown here is a new departure in Gas Grates. It is the result of years of scientific research to find a Gas Grate that would actually *radiate* nearly all its heat, yet at the same time be *absolutely odorless*. Although the modern Gas Grate is becoming more and more a prominent feature in the house, it is essentially a most important point when choosing a Gas Grate to see that it possesses the highest *efficiency, economy, and utility for all general purposes*—and to obtain these with complete satisfaction you cannot do better than get a "Richmond." The illustration shows the nature of its construction. It is real English in manufacture and comes, in various finishes, chief of which are—Art Copper, Art Brass and Black Berlin. See these demonstrated at our salesroom, it will convince you of their *Radiant heat properties* and its *economy*. Several designs and reasonable terms.

### The Consumers' Gas Company

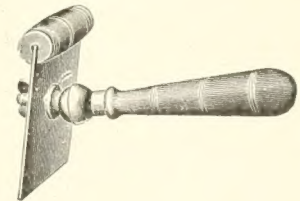
12-14 Adelaide Street West

Phone Main 1933

## Read How Easy it is to Obtain Free of Charge either this 60" Starrett Steel Tape or this Starrett Universal Scraper



There are lots of your Carpenter or Builder friends who should be subscribing to THE CANADIAN BUILDER AND CARPENTER, and you by suggesting this to them, and showing them copies of the paper, can easily get their subscriptions.



If you send the names of two of your friends and their addresses together with a dollar bill from each to pay for their first year's subscriptions, we will send you either the Steel Tape or the Scraper, free of charge, and will send the paper to your friends for a year, and send them receipts for their subscriptions.

Either of these purchased in your hardware store would cost in the vicinity of a dollar. This is a very simple and easy way of obtaining a Steel Tape or a Scraper, and at the same time you will be doing your friends a favor by putting them in touch with a paper like THE CANADIAN BUILDER AND CARPENTER.

Or, if you send in four subscriptions (that is, send in four names and four dollars to pay for the four subscriptions) we will send you, free of charge, both the Scraper and the Steel Tape.

Then too, if having obtained two or four subscriptions, the work appeals to you, we would be glad to have you act as our subscription representative in your territory, and pay you a liberal cash commission on all subscriptions you turn in. For a starter get two of your friends or acquaintances interested, and get the Scraper or the Steel Tape.

## The Canadian Builder and Carpenter

32 Colborne Street  
TORONTO



# GOOD COMMISSION

*Can be made by selling*  
**"GALT"**

STEEL SHINGLES    CORRUGATED IRON ROOFING    EXPANDED STEEL LATH  
 METAL CEILINGS AND WALLS,    METAL SIDINGS, ETC.

Many Carpenters and Builders have, during the last few years, added to their income by selling our goods.

*Write for Full Particulars*

## THE GALT ART METAL CO., LIMITED

174 STONE ROAD

::

GALT, ONT.

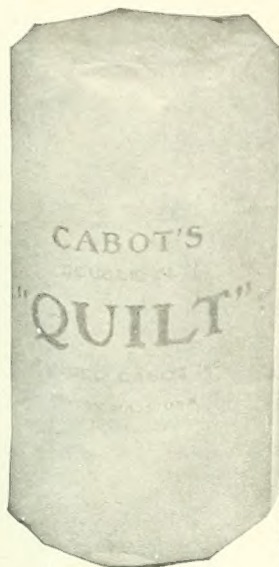
### Index to Advertisements

<b>A</b>	
Asbestos Manufacturing Co., Ltd., Montreal	51
<b>B</b>	
Batts, Limited	20-21
Beath, W. D., & Son	24
Bishopric Wall Board Co.	9
Braid & McCurdy	i.b.c.
Buyers' Guide	60, 62, 64
<b>C</b>	
Canada Lumber Co.	5
Canadian Yale and Towne Co.	59
Clare Bros.	16
Consolidated Plate Glass Co.	18
Consumers' Gas Company	61
Cowan & Britton	54
<b>D</b>	
Dennis Wire & Iron Works Co.	10
Dietzgen, Eugene & Co.	54
Disston, Henry, & Son	57
Dominion Roofing Manufacturing Co., Ltd.	12
Dominion Ornamental Iron Co.	11
Double Claw Hammer Co.	59
<b>E</b>	
Elliot, W. A.	7
<b>F</b>	
Fox Supply Company, Brooklyn, Wisconsin	8
Folding Scaffold Co.	9
<b>G</b>	
Galt Art Metal Co.	62
Georgian Bay Shook Mills Ltd.	i.f.c. 3
<b>H</b>	
Hall, Zryd Foundry Co., Ltd.	17
Hutchinson, Mackintosh	6
<b>I</b>	
Ideal Concrete Machinery Co.	14
<b>K</b>	
Kepplinger, G. J., Dwight, Ill.	55

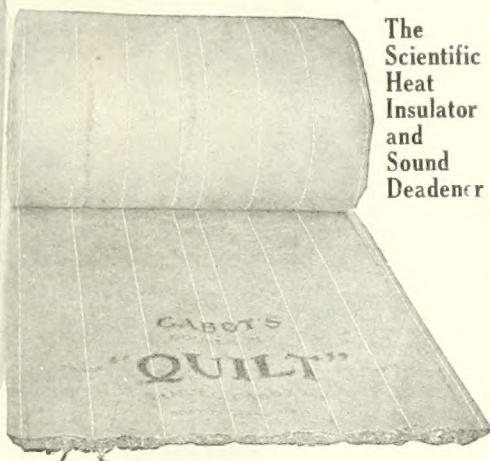
<b>L</b>	
Lickley, H. M., Ltd.	23
London Concrete	15
Laidlaw, R., Lumber Co.	54
<b>M</b>	
Meadows, Geo. B.	11
<b>N</b>	
Neilson, J. L. & Co.	6
<b>O</b>	
Ontario Lime Company	10
Ormsby, A. B., Company	19
Oshkosh Manufacturing Co.	8
<b>P</b>	
Parks Ball Bearing Machine Co., Cincinnati	8
Peace Co., William, Limited	55
Pembroke Lumber Co.	4
Powell Lumber & Door Co.	54
<b>Q</b>	
Queen City Glass Co.	54
<b>R</b>	
Robertson, P. L. & Son	55
<b>S</b>	
Sand & Supplies Limited	13
Smart Mfg. Co., James	18
Smith Hardware Co.	54
Soss Invisible Hinge Co., Limited	59
Stewart Mfg. Co., James	16
Stinson-Reeb Builders' Supply Co.	o.f.c.
Sturgeons Limited	53
<b>T</b>	
Taylor-Forbes Co., Limited	18
Thornhill Co., W. H.	13
Toronto Plate Glass Importing Co.	9
Toronto Cast Stone Works	13
<b>W</b>	
Walker, W. & Son	55
Wetlauffer Bros	o.b.c.
Weber Manufacturing Co., West Allis, Wis.	9
Winnipeg Wire & Iron Works	10



# BRAID & McCURDY



**CABOT'S  
"QUILT"**



The  
Scientific  
Heat  
Insulator  
and  
Sound  
Deadener

The Perfect

NON-CONDUCTOR OF HEAT  
NON-CONDUCTOR OF COLD  
NON-CONDUCTOR OF SOUND

**CABOT'S CREOSOTE  
SHINGLE  
STAINS**



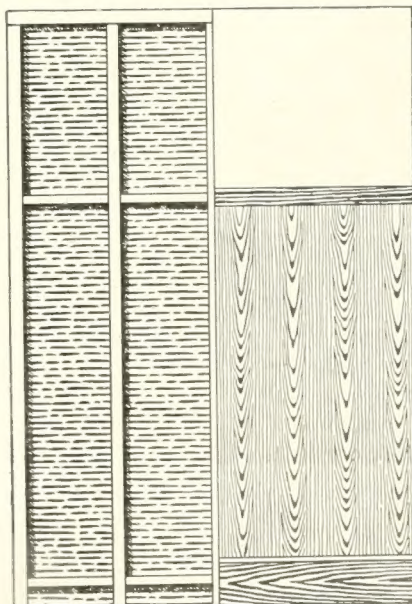
CABOT'S BRICK STAINS  
CABOT'S CEMENT STAINS  
CABOT'S PLASTER STAINS  
CABOT'S MORTAR STAINS



## Neponset Wall Board

**F**inished in dark oak, ready to nail on. Requires no further finish. Is waterproof on both sides, and can be easily washed. The best finish for walls and ceilings of kitchens, dining-rooms, parlors, living rooms, bedrooms and attics.

*For further particulars  
write or phone*



**BEFORE and AFTER**

OFFICE:  
204 Farmer Building  
WAREHOUSE:  
Foot of Bannatyne Ave.

**BRAID & McCURDY**  
WINNIPEG, Canada

OFFICE PHONES:  
Main 5284 1232  
WAREHOUSE PHONE:  
Main 1448



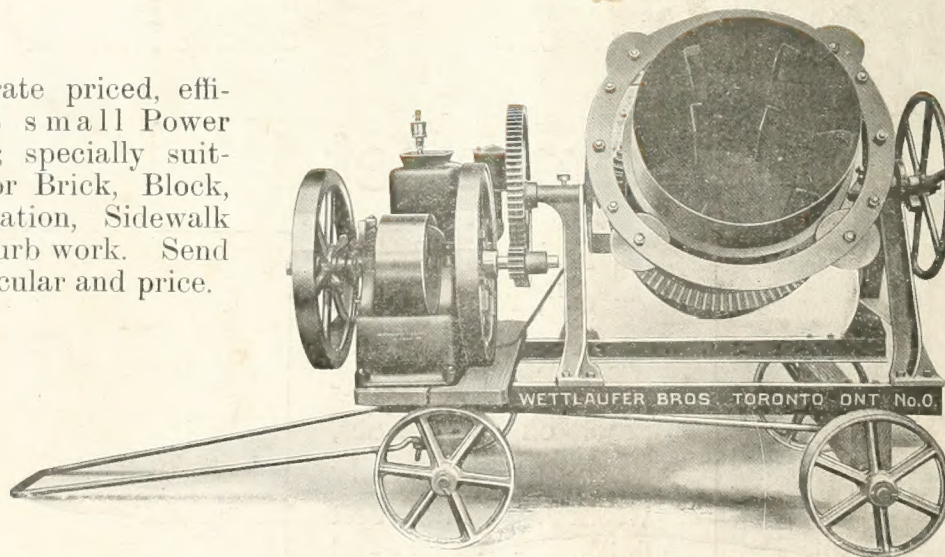
# Largest Display of Equipment and Machinery for Contractors and Builders ever made in Canada

This is what you will see when you visit  
us at the Toronto National Exhibition

OUR exhibit will occupy 22,500 square feet; and you will have the opportunity of seeing all kinds of Contractors' Machinery **in operation**. After having seen and studied our exhibit you will feel well repaid by the practical ideas you will have gained.

You will find our space to the south of the Poultry Building;  
and we will be glad to have you make our reception booth your  
headquarters and your resting place.

Moderate priced, efficient small Power Mixer; specially suitable for Brick, Block, Foundation, Sidewalk and Curb work. Send for circular and price.



Send for catalogue on our Hand Mixer and to readers of *The Canadian Builder and Carpenter* we will gladly send circulars or catalogues on any line of concrete machinery in which you are interested.

Office and Warerooms  
WETTLAUER BROS.  
316 LaGauchetiere St. W.  
Montreal

## Wettlaufer Bros.

178 Spadina Ave., Toronto

A. E. HODGERT  
Regina, Sask.

R. F. MANCEL  
41 Cadogan Blk.  
Calgary

MAYSMITH & LOWE  
545 Bastion St.  
Victoria, B.C.

A. R. WILLIAMS  
MACHINERY CO.  
15 Dock St.  
St. John, N.B.

The CANADIAN BRITISH  
ENGINEERING CO., Limited  
324 Fifth Street  
Winnipeg, Man.

The HALLMAN  
MACHINERY CO.  
3743 Alexander St.  
Vancouver, B.C.